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CONTENTS OF NO. VIII.—VOL. IX.

American Farmers,.....449
The Chinese Sugar-Cane,.....455
Save all your Fertilizers,.....457
Agriculture in District Schools,.....459
Analysis of the Ash of Clover,.....462
Imports and Exports,.....462
Too Much Land,.....464
Export of British Cattle to the United States,.....465
Steam Ploughing in England,.....466
The Food of Dairy Cows,.....469
Cheaper to Enrich than Impoverish Land,.....472
On Insects,.....473
Comments on "Mr. Yeoman," in November No.,...478
Bones as Manure,.....479
Cultivation of Wheat in New-Hampshire,.....480
Farmers' Daughters,.....482
Remarks on Farmers and Farming in New-England,483
Growth of the Locust Tree in Essex Co., Mass,.....484
Egyptian Wheat,.....485
Editorial Correspondence,.....486
Acclimation of Vegetables,.....489
The Steam Plough,.....490
Anti-Friction Metals,.....490
Manufacture of Steel from Scrap Iron,.....491
Recent American Patents,.....493
Recent English Patents,.....495
Domestic and Miscellaneous,.....499
Book Notices,.....508
List of Patents,.....509

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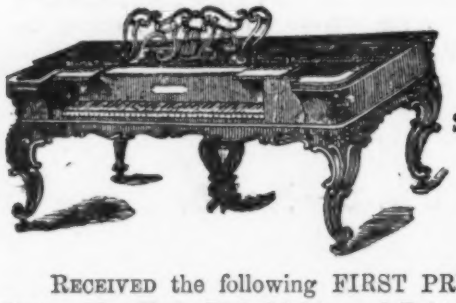

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The Plough, the Loom, and the Anvil.

VOL. IX. FEBRUARY, 1857. No. 8.

Agricultural.

AMERICAN FARMERS.

IF it is true, as we have stated before, and as we believe every man well read in the history of modern civilization will admit, that the cultivators of the soil have nowhere yet held that high position of social and civil influence, which the best good of the race requires that they should, it is worth while to inquire for the cause of so important a failure. Why have they not?

Leaving other countries, we will confine the inquiry to our own. Here are comparatively few monopolies. We have few vested rights, by which to turn the rewards of labor into coffers of another. No ancient king has erected a barrier about New-York, Philadelphia, New-Orleans, as around Paris, and decreed that for all coming time the farmer, who carries his produce through its gates, may have for it half of what the consumer pays, while the city shall have the balance. No divine right is claimed for oppressing the producing classes. The government has always been administered as the farmers wished, or at least might have been, had they been united and spoken out, for they have always been in majority. Either they have always had their way, or, if they have not, it has been their own fault.

Our own views are well known;—we believe that everybody else has been served first, that the farmer's interest has been left to the last, and is not reached yet. We begin to doubt whether it ever will be. Certainly it will not, unless the farmers of the country assume a more united and a more formidable position than they have yet done. This very winter, if a remodeling of the tariff were undertaken, we suppose that a British iron-monger residing in New-York would gain more consideration with Congress than all the farmers in the land. The loss to the carrying trade would be sung through at least three octaves and into a fourth, till it should attain so high a squeak as to drown more decent voices. We should hear of ships rotting at the wharves, of sailors robbing hen-roosts, and of national ships unmanned for the want of a mercantile seaman's apprenticeship, till we should forget whether American farmers should have the feeding of the men who make iron for their carts and ploughs, or

whether British ore and coal, or American, should be used in the manufacture.

But all this does not reach the difficulty. The question is, Why have not American farmers attained a high place of influence and power? Why do they, numerous as they are, as really the supporters of the government as the ass is of the master who rides him, stand aside, with hats under their arms, like underlings, and see every other interest served before theirs? That it is so, every one can see. But why is it so; and by what means is it to be otherwise? Let us look at these two questions.

If we look back to the commencement of farming operations in this country, we shall find that the early farmers had most of them been farmers in England before coming here; not however of their own land, not the owners of their own houses, but farmers of another's land, and dwellers in another's cottage, liable to be turned out if they did not demean themselves meekly. They were taught by church and state that there is a wide difference between the owner and the tenant. They might respect themselves as compared with their fellow laborers, but not in comparison with Mil Lord and his sons, that rode fast horses and hunted foxes. They might dress clean of a holiday, but might not wear such a coat as the *gentlemen* in their neighborhood wore, not even if they could afford it, which was not often the case. That would be quite unbecoming. They were as thoroughly trained to cringe, and fawn, and make low bows, as men of their sterling sense could be. Now the effect of education is tremendously strong. What is drilled into the bones of a race, cannot be bred out of the flesh in one century, nor two, nor wholly in three. Our fathers came here fully prepared to look up, and if any one, whether lawyer or doctor, merchant or *gentleman*, assumed to fill the place above them, it was perfectly natural to them to see it filled. We have not the least doubt that this cause operates to this day, and will for another century. Under its influence, the American farmer feels very much like taking off his hat to everybody that wears a fine coat, and talks a little more flippantly than he can. Heaven forbid that we should destroy his respect for real intelligence and worth. Our national bump of reverence has nothing to spare. As a whole we would sooner see it growing than declining. But we cannot bear that the farmer should allow himself to feel an inferiority in the presence of men who are not really his superiors.

This tendency of the farmer to think diminutively of himself as compared with men no way his superiors, was helped on by the entire policy of the English rule, so long as we were colonies, but what drove the nail and clenched it for centuries, was the colonial policy of compelling our fathers to depend on England for our manufactures.

For a while this could be indured, because in the infancy of a colony the settlers are necessarily dependent. They cannot clear up their lands, build houses, establish churches, colleges, schools, factories, all at once. The building of factories, the development of mineral resources, the proper division of labor, must of course be postponed for a while. While they were postponed to the necessity of the case, and by common consent, the system became fixed upon us so strongly that it seems likely to take the years of another jubilee to slough it off. England must make our door locks, whether she could make one that would keep out her villains coming among us or not. Her smithy must have twenty-five cents for making it; her exporting merchant must have twenty-five more for bringing it here; the jobber would get twenty-five more, and the retailer another twenty-five; and the farmer pay one dollar for a lock, that would make a rogue laugh and an honest man cry. It may be said that this is not so very bad, no worse than we are doing now, when we buy English razors for a dollar, which everybody knows, or should know, are retailed in England for one shilling.

British manufacturers at home, and British merchants stopping in New-York, love to *shave* us, and if we love *to be shaved*, let it go on. But the trouble with our fathers was, that they had no money to buy those locks *to let in rogues with* and those razors *to be shaved with.* They could grow produce, but there was no manufacturer among them to consume their produce. It went a begging. Nobody would buy it. Now, when any one has a great deal to sell, but can raise no money for it, he feels like rather a small sort of a man. He can hardly hold up his head among merchants and others who have money enough. And yet this is the very training which American farmers have been through. Even since this century came in, fatted calves have been killed, the fore-quarters thrown to the pigs, and the hind-quarters carried a long way and sold for two and a half cents a pound. Pay was often taken in India cotton at fifty cents a yard. Nothing could be more unfavorable to agriculture. We have often wondered why the farmer did not lie down in the furrow. There is a sense in which he did;—he became unenterprising, nor was he to be blamed for it. He lacked incentives. He, in a measure, lost his self-respect. Anybody that could get some money was better than he. He rejoiced if a young lawyer, or a sprig of a merchant's clerk, took a fancy to his daughter, and would rather his son should learn to turn broomstocks, or make shell combs from oxen's horns, than to be a farmer.

Now the times are better. If the farmer can grow something, he has a reasonable prospect of selling it at a living profit. But the depressing influences of such a state of things as the farmers of this

country have been through, do not cease in a day or a year. They run through generations.

Out of this non-manufacturing system, this dependence on a foreign power for nearly all that was worn by day, or slept in by night, articles without which we could not be born comfortably or buried decently, or work the soil while we lived, grew among other foolish ideas, this most foolish of all, that the farmer alone has little need of education. We mean that this ridiculous idea grew out of that state of things, as an *American idea.* It was old in Europe three centuries ago.

It may be nearer the truth to say that it was imported; but it became acclimated, confirmed, made, we sometimes fear, as immovable as the everlasting hills, by that very state of things which we have described, a dependence on England for our swaddling clothes, and grave clothes, and all the clothes we wear between, wedding suits and all, for our pots, axes, dish-kettles, and log chains, everything we wore or used, and consequently no home market for our produce, twenty pounds of veal for the writing of a dunning letter at us, and then no money for the veal, but a yard of Indian cotton, that the wind might not blow upon too rudely, and that the lawyer would by no "manner of means" accept as pay for a three-line dunning letter. Those who oppose American manufactures would reïnaugurate precisely such a condition for the farmer; would leave him to the sorry chance of raising a great deal and getting precious little for it. All the commerce in the world would not save him. It would only filch away the little money he could get, and put it quite beyond his reach, concentrating a large share of it in our own commercial centers, and dividing the rest between the foreign merchant, the foreign farmer, and the foreign mechanic, instead of leaving it here to go the rounds, from the farmer to the manufacturer, from the manufacturer to the laborer, from the laborer back to the farmer, through everybody's hands, buying what everybody wants.

It is nothing but the supplying of our own wants, and, as fast as possible, our own luxuries, by home industry, that can keep this latter state of things in operation. Nothing else will save us from being cheated as badly as our fathers, when they bought their door locks of England, and as we are when we buy a certain class of razors that sell here for a dollar, and there for a shilling, or another class, that *shave* when we buy them, but won't *shave* afterwards. It is true that foreign immigration, and our expectation of farm produce, great in itself, but destined for ever to be small compared with the amount we can grow, might a little retard the return of times when the results of the farmer's labor would go a begging. But it should be considered, that a failure to manufacture for ourselves would stop im-

migration, while it would stimulate foreign agriculture, and would soon leave the American farmer without a buyer.

While the old order of things lasted, while we imported all our manufactured goods, instead of importing only as now too large a portion of them, while the farmer got almost nothing for his produce, and that not in cash, but in slazy cotton cloth, or in pot-metal nails, or pewter tankards, or pewter gimlets, what wonder that the idea of a young man's wanting no education to be a farmer took possession of the public mind? Alas! if educated, he might be spoiled for his condition. If one of his brothers was dull, educate him for a minister. If another was trickish, make a lawyer of him. The one that was to be a farmer, was born to the trade, and that was enough. Let him stay at home, work hard, and help his brothers into a better position, one from which they would be pretty sure to look down upon him for the rest of life.

This was the reasoning. The idea became about as *fast* in the public mind, as a thorough-going farmer wishes his gate post to be in the ground. To read tolerably, to spell badly, and to cypher worse, was enough for the unlucky boy that was condemned to farm life. Well, where is this old idea, half justifiable fifty years ago, gone to now? Nowhere. It sticks in the heads of some people like a well-set gate-post in the ground. Too many farmers still think that reading, reflection, reasoning, the brightening up of the mental powers is of no use to them. They laugh at science; call it book farming with a sneer, if some neighbor tries to pry into the secrets of the trade, or sends his son to an agricultural school. The farmer, they think, need not know much!! This is a terrible mistake!!!

It has been true since time begun, and will be while time lasts—a truth unaltered and unalterable—that *any profession is honored just about in proportion as the men exercising it are intelligent, mentally cultivated, self-improved.*

To improve your soils, your fruits, your breeds of cattle, is well. But it generally happens that, when a man fails to improve himself, nothing improves around him. He rusts, and his buildings rot; all becomes worse, and his profession suffers in the public estimation. An ignorant farmer is a disgrace to his profession, just as an ignorant minister, an ignorant lawyer, an ignorant doctor, or an ignorant, narrow-minded merchant is a disgrace to his. We do not say that the farmer should know all that these men know. "Every man to his trade." But he should know his business as well as they theirs; and in order to this, he has much to learn beyond what fell to him by being born on a farm, or will come to him of course by being brought up a farmer.

We would not counsel farmers to read poetry in seed time, or

romance in harvest. The tendencies of their calling are rather scientific than literary. Their business is an art, but it is so interwoven with many sciences, that to speak of the *science* of Agriculture is no absurdity. The soil is a sort of chemical laboratory, and if the farmer knows enough of chemistry to comprehend steadily the chemical allusions in his agricultural journal, it is of immense advantage to him. Plants have peculiar laws for drawing nourishment from the air and the soil, and if he understands these laws he can better minister to their wants, and will thereby gain enough in a single year to pay him for carefully studying a small treatise on vegetable Physiology. Animals have causes of thrift and unthrift, laws of growth, diseases; and how can he be ready for every emergency in the stall unless he understands the nature of the animal he cares for?

We grant that his knowledge on this subject is to be obtained mostly from observation, but then his power of observation will be quickened and made far more useful to him by some reading. His profession is in some respects like that of war. He has enemies, and how can he win, unless he keeps himself informed on the nature, positions, and probable movements of the enemy?

But we forbear. The benefits of study to the farmer are not all payable in dollars and cents. It gives him personal consideration, a high standing in the community—influence. It makes him an honor to his profession. The intelligent, inquiring farmer, of awakened intellect, elevates his profession, just as the ignorant farmer, of no inquisitiveness, with no mind aroused to action, sinks it. The one honors, as the other disgraces, the whole body of farmers. The intelligent farmer, and we have more such than any other country after all our deficiencies, is a pattern to his fellows, and in this way is preeminently useful; for of all the model farms we have ever seen, none are more instructive than those of some self-made, but well made thoroughly instructed farmers among ourselves.

Where a majority of farmers will consent to become like them, aiming at a high self-culture, with a wise reference to their business, and a generous desire for usefulness, and a high standing before the community, their profession will be honored, the government will respect their interests, empty-headed coxcombs even will know enough not to speak contemptuously of them as a whole, *and the country will be safe.*

Of all the means within the farmer's own control, for elevating his calling and securing for it a just consideration, this self-culture is the first. The second is like it—the education of his sons for the farm. Of this in a future number.

THE CHINESE SUGAR-CANE.

From a circular received from the Patent Office, signed Charles Mason, Commissioner, we gather, among other interesting statements, the following:

Origin.—This new plant seems to be destined to take an important position among our economical products. Its seeds were sent, some six years ago, from the north of China, by M. de Montigny, to the Geographical Society of Paris. From a cursory examination of a small field of it, growing at Verrières, in France, in the autumn of 1854, Mr. D. J. Browne, then on a mission from this office for collecting agricultural information and products, was led to infer, that, from the peculiarity of the climate in which it was growing, and its resemblance in appearance and habit to Indian corn, it would flourish in any region wherever that plant would thrive. From this source, he obtained some 200 pounds of the seed, which was distributed in small packages, by this Office, among the members of Congress, with the view of experimenting with it in all parts of the Union, and thereby ascertaining its adaptation to our soil and climate. In numerous instances the results proved highly satisfactory, as it attained the height of eight or ten feet, as far north as St. Paul's, in Minnesota, and matured its seeds at various points in Massachusetts, New-York, Pennsylvania, Illinois, and other places further South. The following year, while in France, on a similar mission as above, Mr. Browne obtained several bushels of the seed of this plant, grown from that reputed to have been brought from South Africa, by Mr. Leonard Wray, of London, and which has since prove to be identical with that obtained by this Office in 1854.

Description and Habit of Growth.—The Chinese sugar-cane, when cultivated on ordinary land, in the United States, somewhat after the manner of broom-corn, grows to a height of from eight to sixteen feet, while in Europe it does not attain much more than half of this altitude. Its stems are straight and smooth, often covered with a white bloom, or down, having leaves somewhat flexuous, falling over and greatly resembling in appearance those of Indian corn, but more elegant in form. When cultivated in hills, containing eight or ten stalks each, it puts forth at its top a conical panical of dense flowers, green at first, but changing into violet shades, and finally into dark purple, at maturity. In France and the central and northern section of the United States, it has thus far proved an annual; but from observations made by M. Vilmorin, as well as some experiments in our Southern States, it is conjectured that, from the vigor and fullness of the lower part of the stalks, in autumn, by protecting them during the winter, they would produce new plants the following spring. It stands drought far better than Indian corn, and will resist the effects of considerable frost without injury, after the panicles appear, but not in its younger and more tender state. If suffered to remain in the field after the seeds have ripened and have been removed, where the season is sufficiently warm and long, new panicles will shoot out at the topmost joints, one or more to each stalk, and mature a second crop of seeds. The average yield of seed to each panicle is at least a gill.

CULTIVATION.—Since its introduction into this country, the Chinese sugar-cane has proved itself well adapted to our geographical range of India corn. It is of easy cultivation, being similar to that of maize or broom-corn, but will prosper in a much poorer soil. It does not succeed so well, however, when sown broadcast with the view of producing fodder, as it will not grow to much more than one-half of its usual height. If the seeds are planted in May, in the Middle States, or still earlier at the South, two crops of fodder can be grown in a season from the same roots—the first one in June or July, to be cut before the panicles appear, which would be green and succulent, like young Indian corn—and the other a month or two later, at the time, or before, the seed is fully matured. In the extreme Northern States, where the season is too short and cool for it to ripen in the open air, the cultivator will necessarily have to obtain his seed from regions farther south. If it were important for him to raise his own seed, he could start the plants under glass, in the spring, and remove them to the field or garden at about the period of planting Indian corn, after which they would fully mature. One quart of seeds are found to be sufficient for an acre. If the soil be indifferent or poor, they may be sown in rows or drills about three feet apart, with the plants from ten to twelve inches asunder; but if the soil be rich, they may be planted in hills, five or more seeds to each, four or five feet apart in one direction, and three or four in the other. The plants may be worked or hoed twice in the course of the season, in a similar manner to Indian corn. Any suckers or superfluous shoots, which may spring up, may be removed. The seed should not be harvested before it acquires a dark or black hue. Should the plants lodge, or fall to the ground, by the excessive weight of the heads, during storms of wind or rain, before the seed matures, they may remain for weeks without injury.

In collecting the seed, a convenient method is to cut off the stalks about a foot below the panicles, tie them up in bunches of twenty-five, and suspend them in any secure, airy place, sheltered from rain. If intended solely for fodder, the first crop should be cut just before the panicles would appear, and the second, as soon as the seed arrives at the milky stage. It may be tied up in bundles, shocked and cured, like the tops or stalks of Indian corn. If not intended to be employed for any other economical use, after the seed has been removed, and if the weather be cool, and the average temperature of the day does not exceed 45° or 50° F., the stalks may be cut up close to the ground, tied in bundles, collected into shocks, or stowed in a mass in a succulent state for fodder, in sheds or barns, where they will keep without injury, if desired, until spring. In this condition, however, the lower parts of the stalks will be found to be quite hard and woody, and will require to be chopped into small pieces for feeding.

PRECAUTION.—Particular care should be observed not to cultivate this plant in the vicinity of Dourah corn, Guinea corn, nor broom-corn, as it hybridises or mixes freely with those plants, which would render the seeds of the product unfit for sowing.

SAVE ALL YOUR FERTILIZERS.

NOTHING is more common than to see farmers preserving certain fertilizers on their premises, but from want of consideration neglecting others of equal or superior value. The solid excrements of animals seem to be regarded by many as the only source of fertility on the farm. That they are the principal source is granted, and there is little danger of estimating it too highly, or of preserving and applying it with too much care. But they are not the only source. Swamp mud, cured in the sun, and then saturated with the liquid excrements, is at least as valuable. The same saturated with strong soap-suds is worth about as much. From these two sources alone, the farm manure may be increased almost *ad libitum*. Swamp mud mixed with two bushels of ashes to the load, forms another article of equal worth. That many farmers, who grow wheat, cotton, or some other valuable staple in large quantities, can advantageously purchase portable manures, at one, two and three cents a pound, we may not doubt, for some of the best farmers have done it, and are reporting favorably. But we are equally confident that the best policy for the great majority of farmers is, to work up the home sources of fertility. To save all, and to add to it, at a moderate expense for labor, is indicated as their best source. We do not now, as we did once, condemn the purchase of guano, at $50 or even $60 per ton; but we doubt whether there is one farm in ten thousand, on which fifty dollars worth of labor judiciously expended in gathering up and composting materials within the circuit of the farm would not give a larger return than any ton of guano ever brought from the Chincha Islands. It will be our duty from time to time to put our agricultural readers in possession of facts, enabling them to judge of the relative value of materials within their reach for manurial purposes. This we shall do with a will, because we have long been of opinion, that in the main, a farm should be made to enrich itself, and to grow richer the longer it is cultivated. We do not much blame our fathers, when land was low and produce was lower, for exhausting one piece of land and then going on to exhaust another. But the time has come for us to do otherwise—to sow grass seeds and plough in the crops, to gather up the muck and apply it to the uplands, to save the bones, the woolen rags, the hogs' bristles, the urine of the stalls, every particle of the night soil, the entire sink washings, the scrapings of the cellar, the parings of the road-sides, the mould of the wood-sides, clay, if it can be found, for the sandy knolls, leaves from wherever they have drifted into large heaps, every thing that can enrich the soil, and whatever tends to consolidate the light lands or open the heavy. Farmers who have neglected to preserve the urine of the stalls, or have let the bones lie

around as nuisances, or been vexed with the woolen rags in the manure heap, or let the blood of their slaughtered animals run to waste, may learn a useful lesson from the following

Experiment by Professor Hermbstadt.

Soil without manure, -	yielded	3	times the seed sown.
Soil dressed with old herbage, grass, leaves, etc., -	"	5	" "
Cow dung, - - - -	"	7	" "
Pigeons' dung, - -	"	9	" "
Horse dung, - - -	"	10	" "
Human urine, - - -	"	12	" "
Sheep's dung, - - -	"	12	" "
Human manure, - -	"	14	" "
Bullock's blood, - - -	"	14	" "

We are not informed how much of each of these was applied, nor must we suppose that the relative value indicated is any more than an approximation to truth, but as such, the experiment is of value, as showing the great worth of certain substances, which many have neglected to preserve. A similar use may be made of the following analyses of Payen and Bousingault:

Table of the relative amount of nitrogen in blood and other fertilizing substances.

	Water	Nitrogen in Manure.	
		Dry.	Wet.
Farm yard manure, 100 parts, contain	79	1 95	41
Solid Horse dung, - - - - -	75 3	2 21	55
Human urine, - - - - - -	79 1	12 50	2 61
Urine of public vats, - - -	96 0	17 56	16 88
Solid dried blood, - - - -	21 4	15 50	12 18
Liquid blood, - - - - -	81 0	———	2 95
Blood coagulated and pressed, - -	73 5	17 00	4 51
Guano, - - - - - - -	19 6	6 20	5 00
Graves, - - - - - - -	9	12 93	11 88
Woolen rags, - - - - -	11 3	20 26	17 98
Bones, - - - - - - -	8 0	———	6 22

If we were to estimate these manures solely by the nitrogen, it would appear that woolen rags are worth about eleven times as much as dried farm-yard manure, and nearly fifty times as valuable as wet; and that dried blood is worth from eight to nine times as much as dry farm manure, and about forty times as much as wet; and that even liquid blood is nearly twenty times as valuable as wet farm-yard manure. This would not be a fair way of estimating the comparative values, because the heavy farm-yard manures would contain more value in mineral ingredients than the woolen rags or the blood. Enough however may be seen from the table to show the great value of certain sub-

stances often neglected. We hope it may be studied for this purpose. It would be bad policy to buy ammonia in guano, and throw away the nitrogen in woolen rags and in the blood of animals and in night-soil. We have seen the style of doing things on a great many farms, and much have we seen to admire as compared with the general run of farming, but it has seldom fallen to our lot to see a farm on which we did not think that the essential ingredients for crops—the ammonia, the phosphoric acid and the potash—might be gathered from the farm itself and composted into a condition to increase fertility at a cheaper rate than to bring them from beyond Cape Horn.

AGRICULTURE IN DISTRICT SCHOOLS.

THERE are not far from one hundred District Schools in this county; all but eight or ten of which are, perhaps, filled with farmers' children; while an equally large proportion of the number of these children will probably follow farming for a business through life. And still, there is not a Distict School in the county—perhaps not in the State—in which the *Science of Agriculture* is taught—nor even those other sciences which most intimately apply to and promote agriculture; such as Botany, Geology, Chemistry, Mineralogy, and Natural History.

Is it any wonder that so many of our legislative bodies and other responsible offices are filled by men from other professions? Is it strange that the superior minds—or those supposed to be so—among Farmer's sons, seek, or are sent to fill, other professions, where more mind and intelligence are *commonly considered* requisite to secure fame and success? Not at all. It will always be so until the profession of the farmer is elevated so as to demand and interest a higher and wider degree of intellectual effort, and will afford the rewards and honors of higher mental exhibitions. And certainly, no profession among men furnishes a wider or more diversified scope, for all the capacities of the mind than does that of Agriculture, and when it is viewed in all of its requirements and relations—in short, when reduced to that proper and beautiful science which it is capable of presenting, and which it does present in the minds of those who look at it in all its bearings. The office of the Teacher, Preacher, the Doctor and the Lawyer, are noble callings, and demand justly a high order of mind to secure their highest usefulness; but still, the whole business of the complete Farmer embraces a wider field for the exercise of thought and learning—all of the natural sciences are readily conducive to his interests—in fact, the other sciences are but branches of the grand Agricultural Science, when it is fully systematized and developed. Meteorology, Climatology, and the others above named, all readily and naturally pay tribute to the pleasure and profit of farming, if the farmer does but intelligently demand of their treasures, with the same mental energy that men grasp the sciences of Law, Commerce, or Navigation. A knowledge of the laws, habits, etc., of animal and vegetable life, together with the hidden earth-workings, are all calculated to enhance the delights and benefits of the farmer's vocation, if he but

earnestly seek such knowledge with the devoted labors both of *mind and hand*, with the studious application of the Lawyer or Doctor.

These are but the general propositions which might be enlarged upon by giving the details, such as the best modes of farming, testing and preparing desired soils—of adapting crops to soils, and soils to crops—the principles of fertilizers—the rearing and feeding of stock—application and improvement of implements, and the like; either of which subjects would afford ample field for a lengthy essay—as well as Horticulture and Pomology.

Thus it may readily be seen that the science of agriculture embraces a wider, more varied, and beautiful field for mental labor than any other; and just in proportion as the full powers of the *mind* are earnestly brought into this service will the labors of the *hands* be rendered more pleasing and lighter. It is the grand foundation of all human *material* wealth and existence—it is the source from which all others derive their support; without the products of Agriculture, Manufactures, Commerce and Literature would perish and become extinct.

Is it not strange, unaccountable, then, that mind should so long and so much have neglected the profession of Agriculture, while the others of less importance to our race have been, are still, over-stocked with half-idle, half-fed members? Why is it that the high dignity of farming has been so lamentably forgotten or overlooked? Simply, because it has not been properly understood and appreciated—the mental sky has hung with dark clouds, and the hands have been overtasked and irksome.

To correct this great mistake we must go to the foundation of things—to remove this prevailing error, we must go to work at the fountains of mental action and forces—we must go to the children, the scions of the rising generation—to THE COMMON SCHOOLS.

The study of Agricultural Science, in clear form, and the kindred sciences should be made common and necessary branches in our Common Schools, as much as Grammar, Astronomy or Algebra—let it be expected and required that this shall be a matter of instruction in all our schools, the same as other common studies, and we shall soon see an interest and earnestness awakened for study among our farmers' children before unknown—we should soon see an intelligence and pleasure in the pursuit of farming with this true union of *science and practice*, which that profession has not before presented, while at the same time the benefits and profits would be measurably increased with the enlarged pleasure, including reduced drudgery. And better still, we should seldom see the humiliating sight, now too common, of two many of our best minds, leaving the profession of their fathers to seek a surer field of fame and fortune in the more popular pursuits.

Another advantage will be, that farmers will be better qualified, and have more confidence in their own abilities to become legislators to make laws for their own government as well as to fill other offices generally; and consequently will have less need for lawyers to explain everything to them, and to prepare all of their papers of trade and business. They will not seem to feel or expect it to be almost necessary that they should select persons from among the "learned professions" to deliver their lectures and addresses, and teach their schools, etc.

Perhaps, we have not as yet all the necessary text books, on this

subject, to take familiarly into our schools—not the most suitable that could be, probably—but let there once be a general demand for them, and it will not be long before they will be provided—competent minds will quickly see our wants and supply them, so that there will be no more lack of text books than is found in other departments of study; the very spirit and discernment which perceives the wants and stimulates to improvement will speedily be awakened to furnish all the requisite facilities, as soon as the needy community shall generally and in earnest make the demands.

It is certainly as necessary that the children of the country should be taught in Agricultural Chemistry as in Geography—in fact they may to a considerable extent be included in the same book for young beginners; for instance as the location and particular business of a place or country is described, it would be well and profitable also to have its soil carefully described—how it is constructed geologically—how it is, or should be, cultivated—what the system of fertilizing and the results—the most successful management of stock raising and dairy business; and so on. If geography makers would insert some general and reliable knowledge of this kind, and other kindred facts, their books would be both more interesting and useful, besides far more popular.

Certainly, it must be full as useful to scholars in general to be informed of the systems and results of agricultural operations in different localities, States, or nations, as to know their common geographical details and political character.

Then again, the common text books on Geology, Chemistry, Botany, Natural History, may also be so improved by combining practical facts and statements of the same kind, as to render those works more pleasing and useful; by showing their application, in different ways, to the various arts of Agriculture—as they all may greatly contribute to lighten the burdens, and increase the profits and pleasure of the farmer.

In this way book-makers, in those departments, may at one and the same time advance their own fame and usefulness, and benefit that branch of human labor which is the chief basis or dependence for prosperity to all branches of proper industry and enterprise—whether in making or carrying the necessaries of life. Thus, Mr. Editor, I have made some crude and brief suggestions on different points, in a direction, which, by following up, men of talent and learning may render great benefits to the country, and secure to themselves a high and proud name of usefulness. Shall the Science and Art of Agriculture become a regular branch of study in our Common Schools?—*D. S. C., in Wis. Farmer.*

Lord Kinnard's experiments show conclusively that manure produced and kept under cover is much more effective than that produced and kept in the open air; and they show, just as we should expect from accurately conducted experiments, that the advantage is quite as decided on the second year's crop as on the first. N.

ANALYSIS OF THE ASH OF CLOVER.

Potash	16.101
Sodium	1.874
Soda	40.712
Lime	21.914
Magnesia	8.289
Phosphate Iron	670
Chlorine	2.856
Phosphoric Acid	3.915
Sulphuric Acid	1.063
Silica	2.605
	100.000

The foregoing analysis was made by Prof. Horsford, of Cambridge University, when pursuing his studies in Germany some ten or twelve years ago. The large amount of the alkalis explains why wood ashes are favorable to the growth of this plant. The amount of lime in the ashes shows why lime, on soils deficient in that ingredient, is so beneficial to the growth of clover, that large tufts of it will spring up, in some cases, where not a head had appeared for years, if a handful of lime happens to be dropped on the turf. As all the ingredients noted in the above analysis are contained in barn-yard manure, that is sure to produce a good growth of clover, if applied in considerable quantity; but as some of these ingredients exist in barn-yard manure only in small amounts, as compared with the demands of clover, this plant cannot be expected to continue long to flourish from the effect of a single dressing, unless the ground be naturally rich in its principal elements, potash, soda, lime, magnesia, and phosphoric acid. N.

IMPORTS AND EXPORTS.

It appears from authentic documents that we imported, in the year ending June 30th, 1856, foreign goods to the amount of $261,000,000. Of these $28,000,000 worth were re-shiped to other countries, leaving the value of $233,000,000 to be consumed and paid for by ourselves.

Of this sum upwards of $28,000,000 went for silks, nearly $17,000,000 for coffee, and $7,000,000 for tea, besides large sums for other articles, which can be viewed no otherwise than as luxuries. Of this we will say nothing now. If those who are able to indulge in foreign luxuries, choose to do so, none should forbid; and when the amount of employment given to the industrial classes by those who expend freely is considered, there is at least a mitigation to the regret we might otherwise feel.

But in looking over the figures, we perceive that still larger amounts have been expended for articles that could have been produced quite as well at home. They are articles for which the American farmer

should have furnished the raw materials, and furnished also food for the persons employed in manufacturing them; and we cannot look over the account of our last year's trade, without feeling that great injustice has been done to the farmers of this country.

It appears, however, that our exports have exceeded our imports; and it is an interesting fact, that considerable more than half of our exports have been in farm produce, though we do not believe that the exportation of such produce will in the long run conduce to the prosperity of American agriculture in the same degree as the consumption of it at home by the manufacturers among us. Our exportation of farm produce has been as follows:

Beef,	$2,600,547	
Tallow,	1,352,406	
Hides,	361,982	
Horned Cattle,	84,680	
Butter,	418,723	
Cheese,	514,034	
Pork, (pickled,)	4,390,979	
Hams and Bacon,	3,195,978	
Lard,	4,018,016	
Wool,	27,802	
Hogs,	2,192	
Horses,	108.484	
Mules,	83,420	
Sheep,	18,837	
Total product of animals		$17,178,080
Wheat,	$ 1,329,246	
Flour,	10,896,908	
Indian Corn,	6,961,571	
Indian Meal,	1,237,122	
Rye Meal,	236,248	
Rye, Oats, etc.,	238,976	
Biscuit or Ship Bread,	657,783	
Potatoes,	203,416	
Apples,	107,643	
Onions,	64,496	
Rice,	1,717,953	
Total vegetable food		23,651,362
Cotton,		88,143,844
Tobacco,		14,712,468
Hemp,		121,320
Flax Seed,		6,016
Clover Seed,		13,570
Brown Sugar,		286,408
Hops,		1,310,720
		$145,425,788

TOO MUCH LAND.

THE great error with our American Agriculturists is a morbid desire to own and occupy more land than they can cultivate. Farming is a scientific business, and is capable of being reduced to rules as precise and accurate, and we may add, as successful, as those which regulate manipulatory processes of the practical chemist. Washington, whose discriminating powers were certainly of an exalted order, in one of his valuable epistles to the celebrated Arthur Young, says:

"The agriculture of this country is indeed low; and the primary cause of its being so is, that instead of improving a little ground well, we attempt too much, and do it ill. A half, a third, or even a fourth of what we mangle, well wrought and properly dressed, would produce more than the whole, under our system of management."

Few apothegms, uttered by the sage of Mount Vernon, are possessed of greater force than this, even at this day, and it would be well for our agriculturists who are so anxious to extend the limits of their farms, without manifesting any further desire to augment their productiveness and profit, if they would ponder it more carefully, and act more in accordance with the system it suggests.—*Germantown Telegraph.*

That the father of our country wrote wisely in the above quotation, as indeed he always did, we have not the least doubt. We shall venture, however, to differ with the Germantown in part, though in the main we agree with it. The error of Americans is not exactly in having more land than they *can*, but more than they *will* cultivate.

A man without capital *cannot* cultivate much land, and do it well. The necessity of a floating capital, equal to something like half the value of the land, has not yet been considered by the great body of American farmers. We insist, that with a floating capital, adequate to the business, kept always at control, an energetic farmer, who understands his business, can cultivate ten acres, and make a good business of it; he can cultivate fifty, and make a better business of it, or five hundred, or one thousand. Ability to cultivate is not to be measured by a man's physical strength. On this scale five acres near a city, or fifty far inland would be enough for any man. It is to be measured rather by one's knowledge of soils, crops and markets, and by his ability to keep a good number of irons hot without letting any of them burn. If a farmer is master of his trade and has a business capacity, why limit him. It is as true now as it was in Washingston's time, that "a little farm well tilled" is a good thing. But it was true then and is now, that a farmer of sense, intelligence, judgment, skill in his business, energy and ambition, should not be limited. Don't let us talk about how much land he *can* cultivate well, but how much he *will* cultivate well. Let him have as much as he *will* keep in a highly productive state, be it ten acres, or one hundred, or one thousand. Ten acres is the best figure for one man, a hundred for another, and a

thousand for another; just as a shop only large enough for one person to work in, is the best for one shoemaker, and one large enough for a hundred to work in together, is better for another. If successful farming depended solely or mainly upon mere physical strength, if the farmer were doomed to be an ignorant drudge, as some people seem to think, we would commend small farms; but we believe no such thing. It is a business for the loftiest intellect as well as the lowest. Let those who will, rise by it to the highest positions in society. Some at least can. N.

EXPORT OF BRITISH CATTLE TO THE UNITED STATES.

THE following from the *Mark Lane Express* will be read with interest:

It has been our pleasing duty on several occasions during the last few years to place on record facts illustrative of the growing importance abroad which is being attached to the possession of the best and choicest breeds of cattle of which the United Kingdom can boast. This feeling augurs well not only for farmers and breeders of neat stock, but for the country at large; and it is therefore a source of national satisfaction to see how highly such are prized. During the past week there were shipped from Liverpool for New-York, on board the Antarctic, Capt. Stouffer, a most valuable cargo of horses, cattle, sheep, and pigs; the arrangements for which were such as might have afforded our facetious friend *Punch* scope for his witty pen, to see how highly-favored a daughter of Master Butterfly (so honored in his columns) was placed in the poop of this splendid ship, the captain of which has so distinguished himself for his bravery and humanity as not only to receive thanks of his countrymen, but other and more substantial marks of their gratitude for his heroic conduct.

Prominent among the cattle was a young cow called Darlington 6th, by a son of Grand Duke. She was bought at Mr. Sainsbury's sale, in August, for 300 guineas. Another very fine heifer, Marie Louise, by Mr. Booth's Hopewell, purchased at a recent sale in Ireland. There were also three first-class heifers from the unrivalled herd of Colonel Townely, of Townely Hall, in Lancashire; Buttercup 2d, by Horatio from Rosette; Miss Butterfly, by Master Butterfly from Rosa; and Pearlette, by Falcon from Ringlet. The price given for these three heifers was 1000 guineas, although only just turned one year old. Two of them are descended on the dam's side from the same family as the famous bull Master Butterfly, which animal was sold for Australia, in July, at 1,200 guineas. Miss Butterfly was the first heifer-calf by him. Pearlette is descended from Mr. Booth's Bracelet, one of the most celebrated prize cows of her day; and for the dam of this heifer Mr. Douglas recently gave Mr. Townely 500 guineas. These animals have been purchased by Mr. Strafford, of London, for Mr. Thorne, of New-York, one of the most enterprising breeders of that country.

There were also consigned for this gentleman, some very fine Southdown sheep, purchased at the Hengrave sale, as well as some of Berkshire and Essex pigs that we ever saw leave the port of Liver-

pool. The Berkshires were from the famed stocks of Mr. Hewer and Mr. Overman; the Essex pigs were bred by Mr. Crisp, and included the prize boar at Chelmsford, as well as some young sows also shown there.

With the above there were also shipped some splendid Southdown sheep from Mr. Lugar's flock, as well as the shearling ram bought at his sale for 80 guineas. These are for Mr. R. A. Alexander, of Kentucky, a gentleman whose name stands high as a great purchaser of our best animals, who in a recent visit to this country, bought the celebrated horse Scythian by Orlando, winner of the Derby (by Touchstone,) one of the best stallions this country ever produced, whose pedigree and performances are well known in the sporting world. He was winner of the following prises: Newmarket Stakes, £350; Dee Stakes, Chester, £750; Goodwood Stakes, £950; the Newmarket Royal Stakes, £1,240; the Chester Cup, £2,775; Stockton, £530; Goodwood, £539. This valuable horse, for which Mr. Alexander gave 1,500 guineas, accompanies the above cattle, under the charge of Mr. Beck, and is consigned through the Messrs. Tattersall.

Some cattle and sheep were also sent by Mr. Wythes, for a house in New-York. The entire arrangements for the shipment were made by Mr. Bell, of the Adelphi Stables, and were of the most complete character, being such as to reflect the greatest credit upon the care and attention of this gentleman.

STEAM PLOUGHING IN ENGLAND.

We take the following from "*The Canadian Agriculturist*," a valuable monthly journal, published at Toronto, C. W.:

It would seem that Boydell's engine, with revolving railway, is about to furnish the long-sought improvement in agriculture—a practicable steam-plough. We have always doubted, and still doubt, the economical application of any locomotive engine power to the cultivation of small farms, and on uneven or hilly soil. But on tolerably even surfaces, and upon extensive fields, such as may be found in England and on the Prairies of the West, there seems no reason to doubt that steam power may be profitably employed.

The following account of some recent experiments with Boydell's Traction Engine, in England, is from the London *Agricultural Gazette*, an authority which may be relied upon for intelligence and honest statements:

"The trials having been advertised, we attended on Tuesday and Friday, the 16th and 19th inst., and I shall present the readers of the *Agricultural Gazette* with a brief account of what came under our observation.

"On Tuesday the engine was trench-ploughing a small field on Steam Farm, with two of Cotgreaves' trench-ploughs, Mr. Cotgreaves himself superintending them. The work was being done about twelve

inches deep, and at the rate of five acres per day, or half an acre per hour. The engine, to appearance, would have hauled nearly another plough, as it was never working up to its full pressure of steam; but the two ploughs being all that were at command, we had not an opportunity of bringing this to the test of experiment. The quality of the work gave great satisfaction, especially to the market-gardeners of the neighborhood, some of whom offered to give 30s. per acre for land so trenched, assuring Mr. Middleton—who lets out engines—that a large area of market garden-grounds of the capital could be had at this rate.

"The daily expense of the engine and hands was estimated at about 30s., so that the cost per acre would be 6s.; consequently the profit would be 24s. per acre at the above estimate—equal to £6 per day, or £36 per week.

"On Steam Farm there was also a good deal of ploughing done by the engine, in two large fields, with four of Howard's P. P. ploughs, the depth of the furrow being nine inches, and the rate of ploughing from eight to ten acres per day. The quality of the work was superior—fully equal to what could have been done by four horses in each plough. Both fields were well adapted for traction-engine work, being comparatively level, and of great length.

"On Friday the engine was at work in a large field on Butts' Farm. It was again hauling four common ploughs, ploughing nine inches deep, and at the rate of an acre per hour when timed. The field was still better adapted than the former, being nearly as level, of greater length, and rather lighter in quality of soil. Both fields on Steam Farm, although of a gravelly character, were yet rocky hard in the bottom; but here the soil was more friable and sandy, consequently the ploughs were more easily held—enabling the ploughmen to make far better work than that done by them with horses in the same field.

"The steady, equal draught of the 'steam-horse' deserves especial notice, as it differs widely from that of horses. Accustomed to the latter, we think little about the irregularity of their traction force, when holding the plough behind them, but we have only to examine their mechanism and the ever-varying position of the fulcra (footprints on the ground) over which their muscular force acts, and compare them with those (the endless rails) of the traction-engine, to perceive that the difference is great, and wholly in favor of the latter. In point of fact, Howard's P. P. ploughs, after being entered behind the steam-horse, almost went alone, for we saw Mr. Middleton remove his hand from one of them for a considerable distance, and how much further it would have gone cannot be said. The expense of plough

ing nine inches deep, with four ploughs, is £1 16s. 6d., or about $7 50 per day.

"The sum of 36s. 6d. per ten acres would be something less than 3s. 8d. per acre; but say £2 per day and 4s. per acre.

"The value of the work done was estimated at from 20s. to 24s. per acre; say the lowest of these two figures, which would give £10 per day, so that deducting the £2 (the expense of the engine,) we would have £8 as the profit per day over our present system; £48 per week; or the prime cost of the engine in some ten weeks' work.

"When the engine was timed it was ploughing fully an acre an hour, but that time it was going rather over its ordinary pace. In point of fact, the boiler is only calculated to keep up a maximum pressure of 45 lbs. of steam per square inch, and with the most successful stoking it seldom much exceeded this pressure, while it very frequently fell below it. Midland we found it at one time as high as 50 lbs., and at another as low as 35 lbs. We may also mention here, that we had the diameter of the cylinder measured, and found it 6½ inches. Probably at the ordinary pace of the engine it was ploughing at the rate of eight acres per day of ten honrs. We insisted very hard, on Tuesday, for a ten hours' trial without intermission; but owing to the urgent demand of visitors,—some of them from the continent of Europe, the East and West Indies, and the United States of America,—to see it trench-ploughing, etc., etc., our request was found impracticable on any of the days advertised for public trial.

"At eight acres per day, the expense per acre would be 5s., and the profit per day, £6; per week, £36, over the present system—a profit which would soon pay off the prime cost of an engine. In the the provinces the expense of such ploughing would be, on an average, only 16s.; at ten acres this would yield £8, or £6 of daily profit; at eight acres, £6 8s., or £4 8s. of profit, allowing the expense of the engine in each case to remain as before.

"There was no two-horse or six-inches deep furrow work done, and therefore we cannot say from experience what the expense of such was; but we may safely conclude that, at ten acres per day, it would not be more than 2s. 6d. per acre; and at eight acres per day, 3s.

"Such are the leading facts we gleaned from two days spent with the Messrs. Middleton. That they involve a revolution in agriculture no one will deny who comprehends their importance. To those of our readers who have hitherto been opposed to Boydell's steam-horse entering their fields, the above results may appear startling, and even incredible; but to such we say, go and judge for yourselves, and be guided by facts, not opinions. We ourselves hope very soon to witness far more triumphant results in favor of direct traction than the

above, for several of our most intelligent and leading agriculturists have traction-engines of an improved construction, and with better implements for tillage, nearly ready to enter the field, than what were used on the above occasion."

THE FOOD OF DAIRY COWS.

THE following, from the London *Farmers' Magazine*, is understood to be from the pen of Cuthbert W. Johnson, Esq., one of the best and most reliable of Agricultural writers:

Mr. T. Horsfall, of Burley, in the West Riding of Yorkshire, thus puts the case (*Jour. R. A. S.*, vol. xvii., p. 261) :—"In the neighborhood of towns where the dairy produce is disposed of in new milk, and where the aim of the dairy-man is to produce the greatest quantity, too frequently with but little regard to quality, it is their common practice to purchase incalving cows; they pay great attention to the condition of the cow; they tell you, by the high comparative price they pay for animals well stored with flesh and fat, that condition is as valuable for them as it is for the butcher; they look upon these stores as materials which serve their purpose; they supply these cows with food more adapted to induce quantity than quality; they, in fact, pay little regard to the condition of the animal. With such treatment the cow loses in condition during the process of milking, and when no longer profitable, is sold to purchasers in farming districts, where food is cheaper, to be fattened, or otherwise replenished for the use of the dairy keeper. We thus find a disposition in the cow to apply the ailment of her food to her milk, rather than lay on flesh or fat; for not only are the elements of her food diverted to this purpose, but to all appearance her accumulated stores of flesh and fat are drawn upon, and converted into components of milk, cheese, or butter."

It was as to the best mode of feeding the dairy cow, so that her condition and the maximum supply of milk might be maintained, that Mr. Horsfall directed his valuable inquiries; he thus explains one portion of the task he assigned himself: "It appeared an object of importance, and one which called for my particular attention, to afford an ample supply of the elements of food suited to the maintenance, and likewise to the produce, of the animal; and that if I omitted to effect this, the result would be imperfect and unsatisfactory. By the use of ordinary farm-yard produce only, I could not hope to accomplish my purpose; turnips are objectionable on account of their flavor, and I seek to avoid them as food for dairy purposes. I use cabbages, kohl rabi, and mangold wurzel, yet only in moderate quantities. Of meadow hay it would require, beyond the amount requisite for the cow, an addition of fully 20 lbs. for the supply of the casein of a full yield of milk, or 16 quarts; 40 lbs. for the supply of oil for the butter; whilst 91 lbs. seem adequate for that of the phosphoric acid. You cannot then induce a cow to consume the quantity of hay requisite for her maintenance, and for a full yield of milk of the quality instanced.

"Though it is a subject of controversy whether butter is wholly

derived from vegetable oil, yet the peculiar adaptation of this oil to the purpose will, I think, be admitted. I had therefore to seek assistance from what are usually termed artificial feeding substances, and to select such as are rich in albumen, oil, and phosphoric acid, and I was bound to pay regard also to their comparative cost with a view to profit. I have omitted," he continues, "all reference to the heat-supplying elements; starch, sugar, etc. As the materials commonly used as food for cattle contain sufficient of these to effect this object, under exposure to some degrees of cold, I have a right to calculate on a less consumption of them as fuel, and consequently a greater surplus for deposit as sugar, and probably also as fat, in consequence of my stalls being kept during winter at a temperature of nearly 60°." With these preliminary explanations, the food of Mr. Horsfall's cows, "after having undergone various modifications, has for two seasons consisted of rape-cake 5 lbs., and bran 2 lbs for each cow, mixed with a sufficient quantity of bean-straw, oat-straw, and shells of oats, in equal proportions, to supply them three times a day with as much as they will eat. The whole of the materials are moistened and blended together, and after being well steamed, are given to the animals in a warm state. The attendant is allowed 1 lb. to 1½ per cow, according to the circumstances, of bean-meal, which he is charged to give to each cow in proportion to the yield of milk, those in full milk getting 2 lbs. each per day, others but little; it is dry and mixed with the steamed food on its being dealt out separately; when this is eaten up, green food is given, consisting of cabbages, from October to December, kohl rabi till February, and mangold till grass time. With a view to nicety of flavor, I limit the supply of green food to 30 to 35 lbs. per day each. After each feed 4 lbs. of meadow hay, or 12 lbs. per day, is given to each cow; they are allowed water twice per day to the extent they will drink." He adds: "I have used malt combs, together with bran, half and half, during the present season. Having a larger stock than the year before, with about an equal quantity of hay and less of roots, I reduced the allowance of the former from 12 lbs. to 9 lbs., and that of mangold from 36 lbs. to 28 lbs. per day. I gave also 1 lb. of rape cake additional to each, 6 lbs. in lieu of 5 lbs. On this fare, and with such changes of cows as were called for, my yield of milk, of which a register is kept, ranged during the months of October, November, December, and January, at 160 to 164 quarts per day from 18 cows, being fully 9 quarts per day from each cow."

It is of importance to note that the flavor of the cake is not in the least perceptible in the milk or butter. During May, the Burley herd are turned out on a rich pasture near the homestead; towards evening they are again housed for the night, when they are supplied with a mess of the steamed mixture, and a little hay each morning and evening. During June, when the grasses are better grown, mown grass is given to them instead of hay, and they are also allowed two feeds of steamed mixture. This treatment is continued till October, when they are again wholly housed.

By careful monthly weighings of these cows, the effect of the large supply of food in counteracting the drain upon the system of the cows, in the rich milk they produced, was well contrasted. The cows yielding 12 or 16 quarts per day, were found to vary little in weight,

the monthly balance being rather to gain; the cows giving less than 12 quarts down to 5 quarts, per day, were found, without exception, to gain in weight. This gain, with an average yield of nearly 8 quarts per day, is at the rate of 7 or 8 lbs. per week each. Then, as to another most important branch of inquiry—the increase in the richness of the milk produced from these carefully-fed cows—we learn that in Germany the dairy owners calculate that, upon an average, 14 quarts of milk yield 11 lbs. of butter, and this is about the produce from the dairies in Wharfdale. They say there, that each quart at a milking represents a pounds of butter per week; thus, a cow which gives 4 quarts at a milking, will yield 4 lbs. of butter per week. In winter the produce is lower than this. "The cream from my neighbors' cows (observes Mr. Horsfall,) who use common food (hay, straw, and oats,) somewhat resembles milk in consistency, and requires three or four hours at least in churning. My own cream, during the winter season, is of the consistency of paste or thick treacle. Several who have adopted my system, have reported similar effects—an increase in the quantity, with a complete change as to richness of quality. Mr. J. Simpson, a tenant farmer of Ripley in Yorkshire, reports: 'In about five days I noticed a great change in my milk—the cows yielded 2 quarts each per day more. But what surprised me most was the change in the quality; instead of poor winter cream and butter, they assumed the appearance and character of rich summer produce; it only required 20 minutes' churning instead of two or three hours.'"

The quantity of butter yielded by the milk produced under Mr. Horsfall's mode of feeding, is worthy of serious attention, especially when we consider that the average daily produce of milk in England has been calculated to be about 8 or 9 quarts, and that each quart yields about an ounce of butter. From cream, the average produce of butter has been calculated to be about 9 ounces per quart.

Under the high careful feeding at Burley, the produce has varied from 24 to 27¼ ounces from 16 quarts of milk: "I therefore (concludes Mr. Horsfall) assume in my calculation 16 quarts of milk as yielding a roll (25 ounces) of butter." We see, then, that by the feeding system adopted at Burley Hall, not only is the quantity of milk considerably increased, but that the amount of butter it contains is also increased by more than 50 per cent.; so that a cow which, under the ordinary management, yields (say) 4 lbs. of butter per week, will, when fed on the Burley system, produce 6 lbs. of butter. The results of such careful high feeding on the produce of grass in the rich pastures at Burley is most satisfactory. As might be reasonably anticipated, they are tending to increase fertility; "their improvement in condition is apparent."

These are facts not only most important for the farmer, but to the country at large; for if by any improved mode of management, only a small addition can be made to the amount of butter produced by the 376,713 cows which were, in 1854, either enumerated or estimated to be possessed by the farmers of England and Wales, the aggregate increase would be equal to a very large amount of butter. An average increase of one pound per week from each cow, would be equal to, say, 160 tons of butter in every week, or 8,320 tons per annum—an amount equal to about two-fifths of all imports of foreign butter in 1855. The inquiry, therefore, is most interesting in every

point of view; it is one, however to which but little exact attention has hitherto been paid, and in consequence we need hardly feel surprised at the vagueness of our conclusions. It is true that the use of oilcake and of bean meal is common in many English dairying districts, but the true objects with which those substances are used has never been till now clearly shown by the aid of the chemist, or the results so certainly traced by the weighing machine. We are all aware of the advances made by the owners of live stock during the present century, in their fattening and in their other good meat-producing qualities, and it would now seem that similar advances are likely to be generally made in the productiveness of our dairy farms.

CHEAPER TO ENRICH THAN IMPOVERISH LAND.

THE idea that a farm is made worse if cropped, with a view even to the greatest *present* gain, is a mistake. It is generally taken for granted that a farm, which has been long tenanted, is exhausted. In most cases, in our country, it is so. The farm which has been cultivated by tenants is poor enough. But why? Is it because the tenant has been more selfish than other men? Is it because he has been regardless of the owner's interest? Not that. It is because he has not comprehended his own interest.

If land is in but an ordinary condition, at the beginning of a lease, we hold that no amount of selfishness *alone* will make it worse; though selfishness and ignorance may. Perhaps we ought to make a single exception, that of annual leases. If a farmer is to cultivate another's land for a single year, his own interest would not be promoted by entering into expensive improvements; but even in that case, we do not believe he could be a gainer by taking a course that would leave the land in a condition essentially worse than he found it. And if he takes the land for several years in succession, it being in but an ordinary state when he commences, it is as much for his interest as for that of the owner to raise it.

It is true that when the lease expires, another, and not he, will have the increased value of the land. But he will have had the increased crops as he went along, and that should have been a sufficient inducement to keep the land in good condition. Tenant farming, by men fully cognisant of their interest, does not run land down. The idea of wearing land out, of exhausting it, spoiling it, by anything like intelligent husbandry, is absurd.

But happily we have but little tenant farming among us. Here the farmer owns the acres he tills; he himself has the remote as well as the passing benefit of a soil properly cared for; and is doubly interested in sustaining and improving it. We think any man who will *look the matter through* with the eye and mind of a sensible, far-seeing, practical farmer, will see that even the tenant farmer cannot afford to

let the land run down under his hand. It is too expensive a business; for although, in his case, the loss by diminution in the value of the land will fall upon another, yet the loss by the diminution of current crops will be his, and will be a heavier loss than he ought to inflict upon himself.

But if the tenant farmer cannot afford to spoil the land of another man, surely the owner of land cannot afford to spoil his own. We as much believe it is cheaper to recruit than to exhaust land, as we believe that land produces food for man and beast. A considerable amount of labor is requisite to keep the soil clean, loose, and in fit condition to be permeated to a good depth by the roots of plants; and manure is necessary as food to the growing crops. Now if you cheat the soil out of the requisite labor and manure, it will cheat you; and depend upon it, it will cheat you out of larger values than you cheat it. You will be the loser by the cheating process; the land will be the loser; and there will be no gain anywhere. Wearing out land by cultivation is a losing business all around. *It is a great deal cheaper to make it better than to make it worse, by cultivation.* N.

ON INSECTS:

With Descriptions and Directions useful to the Farmer, Gardener, etc.

In pursuance of our purpose not to weary or offend the taste of the reader, with too prominent an exhibition of the naked timbers of the structure we purpose to erect, by dwelling too much on abstract scientific definitions or generic distinctions, we have now only to request a review of our last essay on this subject; so that by familiarity with it, he may be the better prepared for a continuance of those details in the future. Meanwhile, we go on, presenting, as we are able, a clear, practical view of certain genera and species of insects, highly destructive, and occurring in almost all sections of the country. We begin with

BORERS.

The first of these which we shall present to the notice of the reader is

The Apple tree Borer.—This is the larva of the striped Saperda or *Saperda bivitatta.* It belongs to the division CAPRICORNUS, or the capricorn, or Long Horned Beetles, and to the family Cerambycidæ. The upper part of the perfect insect is brown, and is marked by two longitudinal white stripes. The under side of the body, antennæ, and legs, are white. Its length is from half to three-fourths of an inch. The beetle comes forth from the tree in June, during the night, and flies from tree to tree, in search of food and of companions. About the first of July, or perhaps a little earlier, this insect begins to deposit

her eggs, which are laid through the months of July and August, in the bark of the tree and generally near the ground, because there the bark is more tender, and the young worm can gain an entrance more easily. A little blackish spot, scarcely larger than a kernel of wheat will be discovered wherever an egg has been deposited. By cutting into the bark, at such places, a worm will be found. The insect does not confine herself, however, to any one part of the trunk, but selects those spots that are most tender. Parts where the bark is partially decayed, or where the effect of the sun upon it is favorable to such operations, or where the bark is bruised by cattle or otherwise, or where the tree is weakened by disease and is beginning to wither, are selected by this insect. Such indications are therefore to be searched out by the fruit grower, who is in search of the larva of this beetle. This insect lays about ten eggs each nearly the size of a brass pin's head, and which are arranged thus: . . . . .
. . . . .

The grub is of a whitish color, less than an inch in length and one-fourth of an inch across its broadest part. It is nearly cylindrical and tapering from the head to the end of the body, of a brown color, and is horny. The first ring is larger than any of the others, and the first three rings are covered with punctures and very minute hairs. From the fourth ring to the tenth, each is furnished with two fleshy warts, situated close to each other. It has no legs. The grub eats through the bark, to its inner surface, where it remains through the winter. During the next warm season, it penetrates the sap-wood, throwing out its dust or cuttings, and generally ascends as it bores. Thus it penetrates some twelve or fifteen inches. In the third season, the full-sized borer approaches towards the surface of the tree where it undergoes its last transformation, and escapes from the tree as we have already described.

Such being the habits of this insect, it is obvious at what season the remedy or preventive should be applied. As prevention is better than cure, the destruction of the eggs is far preferable, even to an effective attack upon the larva. But if the larvæ are already at work, means adapted to reach them should be efficiently applied. This insect was described in our last volume, page 140, to which we again refer the reader.

Remedies and Preventives.—These are of two kinds. One is, carefully to inspect every tree, and at every indication of the presence of an insect or egg, to follow it with a wire or with the knife, and destroy it. This is not difficult, since the borer throws out all his chips or *sawdust*, which may be seen at the place of its entrance, and his path may be easily followed. Another plan, which has proved successful, though it need not be followed exclusively, but in connec-

tion with the preceding, is to lay bare the trunk of the tree around its roots, or at its *collar* or base, and commencing a few inches below the surface, bandage the trunk with old woolen strips, or old bags, making this covering secure by twine or otherwise, and giving to the tree, perhaps, a double thickness of these strips. Then replace the earth. The bandage may be extended as far as is thought expedient. Every succeeding spring, this bandage should be loosened and the work done over again. If the eggs are already deposited, a wash of lye is strongly recommended as a safe and effectual application. A pound of potash to a gallon of water will not injure the tree, though an application of less strength may be thought safer by some farmers. A very respectable journal (*Wisconsin and Iowa Farmer*) recommends a peck of leached, or half a peck of unleached ashes, around the trunk of each tree. But this, of course, can afford no security for the higher parts of the trunk. Any application, however, which adds to the vigor of the tree will be, so far, an advantage, and diminish the number of places in which the tree is likely to be attacked. Dr. Harris also suggests inserting a little camphor in the hole and plugging it with soft wood. A handful of soft soap placed in the fork of a tree—a favorite place for these beetles—is highly commended by Dr. Fitch. It will be washed down by the rains, and impregnate the bark. Mr. Downing recommended a mixture of soap, sulphur and tobacco water, as a wash for the trunk and in the axils of the lower limbs. He also recommended pouring hot water into the burrow, by opening a passage for it with a knife, above the path eaten by the insect. The position of the burrow can be learned by piercing the bark with an awl, above the orifice, till its upper extremity is discovered.

This insect attacks not only the apple tree, but the quince, mountain ash, hawthorn, and some other forest trees.

The woodpecker is a most formidable enemy to the Borer, and devours multitudes of them.

The Buprestians are also destructive borers. The *Buprestis femorata* of Fabricius, or what is now called *chrysobothris femorata*, The thick legged Buprestis or the Snapping Beetle, is one of this family. The Buprestians are hard shelled, often brilliantly colored, elliptical or oblong oval, that is, obtuse before and tapering behind. The head is sunk to the eyes, in the forepart of the thorax; antennæ are short, and notched like a saw; thorax broadest behind; legs short; the scutel is small and sometimes scarcely perceptible. With the approach of danger they fold up their legs and their antennæ and fall to the ground. They keep concealed in the night and fly by day. Their flight is swift, and attended with a whizzing noise. Their larva is of a yellowish white color, long and narrow, depressed in form, but

abruptly widened near the anterior extremity. The head is brownish, small, sunk into the thorax; antennæ are very short; the upper jaw is provided with three teeth. They have no legs, but are furnished with two small warts on the under side of the second segment from the thorax.

These grubs are found under the bark and in the wood of trees. They frequently rest with the body bent or curved so as to bring the head and tail nearly in contact. They retain this form, without transformation, for several years. The pupa resembles the perfect insect, but is entirely white.

The species we have already named has the first pair of thighs toothed beneath, is of a greenish black color, with a brassy polish, which is very distinct in the two large transverse impressed spots found on each wing-cover. Its surface is rough and uneven. The thorax has no smooth elevated lines upon it. It is from four tenths to half an inch in length. Dr. Fitch says this species is distinguished from others "by a smooth raised black line, with a narrow impressed line through its middle, upon the middle of the top of the head." The breadth of the thorax is much greater than the length. The habits of this insect are similar to those of the *Saperda*, already described. But it differs from that, in the form of the hole which it bores; the Buprestis cuts a passage of an oval form, twice in breadth what it is in height. Late in summer, these insects burrow into the solid heart of the tree. Pines and firs are their favorite trees, but they often attack fruit trees, as the apple, cherry, peach, etc.

Remedies, etc.—The means of destroying this borer are the same as those described for the Saperda. But these are often more difficult of access than are the apple Borers, as they enter more deeply into the hard wood. When they are very numerous, it is better even to cut down a tree and carefully destroy the insects, by burning, etc., rather than suffer them to remain and multiply.

Among the natural enemies of this destructive grub, are the larvæ of a bee-like insect (Hymenopterous) belonging to the chalcididæ, which, piercing the bark, for the purpose of depositing her eggs, pierces also this grub, and the egg is thus deposited in the body of the borer, and produces a species of aphis which destroys it.

The white oak is most infested with the Buprestians, but when these trees are scarce, the insect resorts to the apple, peach, etc. It has been very destructive to these trees in Southern Ohio. The editor of the *Ohio Cultivator* says that these beetles frequent the south side of the trees, almost exclusively, and that they attack the tree, generally, where the bark has been previously killed. Such is not said to be the fact elsewhere.

The Peach tree Borer. Aegeria exitiosa.—This insect is not

a beetle, but belongs to the order Lepidoptera. The perfect insect resembles a wasp, both in form and color. It is fully described on page 601, and 602 and 603 of our journal, in the number for April, 1856. It is unnecessary to repeat what we there stated, but refer the reader to that, as a full and clear account of the appearance and habits of this most destructive insect, and also of the means hitherto most successfully used to prevent its ravages. But we will add a comparative view made by Dr. Fitch, of this and the apple borer, by which the distinctions between the two may be easily understood. "The peach borer is cylindrical, says Dr. F., and not broader, anteriorly, like the apple tree borer; it has three pairs of small feet, whilst the apple tree borer has none; it has only a few scattered, coarsish hairs, whilst the apple-tree borer has numerous fine shorter ones. They differ much more widely when they come to their perfect state. Whilst the apple-tree borer is transformed to a Long horned Beetle, the worm of the peach tree changes to a four-winged fly, bearing some resemblance to a large wasp."

The eggs of this borer are smooth, oval, slightly flattened, of a dull yellow color. Some of the dark blue scales from the tip of the abdomen of the parent, are often glued to them. Unlike the grub of the apple tree, this is hatched upon the bark near the surface of the ground, and afterwards works downwards, instead of upwards, as does the apple borer, into the bark of the root, forming a tortuous channel, which is filled with gum. Sometimes the bark is entirely consumed from the root over a large surface, an inch or more below the surface of the earth, and the soft sap-wood is extensively gnawed by this worm. Here the insect remains, even through the winter, the head upwards, being protected by a sort of cocoon composed of its own sawdust or cuttings, and cobweb-like threads, mingled with gum.

We have especial reference in our title, "borers," to those insects which devour the wood of trees, without including those which eat into the pea, and other like grains or fruits. Thus, the pea is pierced by the Rhyncophoridæ, or Snout Bearers, a family of beetles named from the shape of their head. An account of them may be found on page 138 of our last volume, in the number for September, 1855. The plum weevil pierces the pulp of the fruit, and deposits its eggs, as described on page 139 of volume 8, in the number of our journal just referred to. The reader may there find a description of its habits, etc. Rice is pierced by the *Calandra Oryzæ*, or the *Curculio Oryza* of Linnæus, which also attacks Indian corn. It is described in the same number of our journal, page 140, but this and the other insects just referred to, are not properly included in the term adopted as our present title. We only refer to them, lest some one not properly

appreciating the technical use of the term *borer*, should look for the description of such insects in this connection. P.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

COMMENTS ON "MR. YEOMAN" IN NOVEMBER NO.

MESSRS. EDITORS:—While perusing the November number of *The Plough, Loom, and Anvil*, on page 293, I noticed a piece headed, "Observations;" and I send you a few lines for publication, if you think them worthy, as comments upon Mr. Yeoman's letter. He says: "Is not the time coming when those enterprising young men who have left the *handsome two-story house*," etc., etc. I answer, No; *never*. No man of energy or enterprise ever will regret, or look back with sorrow to that day when he left the barren rocks of the East, so rough and hilly that the farmer can plough three sides of it. Why should he ever regret? Should he regret because here, in the West, he has a handsome, smooth farm to plough, where there are no roots or stones to keep his blood in circulation? Should he regret that he has come West because he can raise corn here from twelve to fourteen feet high, which yields from seventy-five to one hundred bushels per acre, instead of corn of four feet in height, and a yield of forty bushels per acre, with a cost of double the labor?

Supposing that Mr. Yeoman's ancestors had thought and felt as he thinks and feels, where would have been his "nice two-story house and his long barn?" Who would have prepared these things for him? Can it be found upon the pages of history, where there was a passenger on board the "May Flower," when she landed on the bleak shores of Plymouth, that ever regretted that he left the "nice two-story house, the long barn, and the well-watered fields." Enterprising young men never will regret that they have left the rocks of New-England for the smooth prairie of the West; none but those that have not courage enough to leave father and mother, and if they should leave them, haven ot ambition enough to get a living; they are the ones that will miss the "nice two-story house." Although we Western frontier fellows live in log cabins at present, we are in hopes to have better ones soon. We can build as "nice two-story houses" here as in Worcester, Mass., and have the "well-watered fields," even a much more fertile soil. It is my opinion that Mr. Yeoman has never paid a visit to this prairie country. If he has not, it would be injurious to him to make a trip out in these parts. If he is one of those enterprising young men, he will never want to go back to New-England to farm it again. We have churches and schools here as well as in New-England. L. S. SPENCER.

LYNN, Warren Co., Iowa.

BONES AS MANURE.

A WRITER in the *New-Jersey Farmer*, copied into the Richmond *Whig*, says:

"Last fall a lot of bones were thrown in a heap of horse manure in the barn-yard, and for no other purpose than to get them out of sight. To this heap the manure of the horse-stable was daily added. In the spring, upon carting out the manure, the bones were found apparently the same as when thrown in—whole and sound; but upon being handled, were found to be soft; when lifted, would fall to pieces of their own weight; when exposed to the air, would crumble and become as ashes, emitting a strong and offensive odor. This incident led to a trial of the same experiment last spring, in the same manner, and with the same result.

"We do not pretend to fix the chemical process by which this result is attained; we merely know that such is the result. And if a result so happy in its effects is produced at so little trouble, and with such little cost, our farmers may well spare an odd day in gathering together the old bones lying about their farms, and for the mere trouble of gathering them, add to their lands one of the most fertilizing materials that can be obtained."

The fact is as the writer states, and that whether the bones be thrown into a heap of horse manure, or put into any other situation, where heat will be communicated and fermentation ensue; as for instance, if they be covered with coal-ashes, wood-ashes, loam, or even sand, and left exposed some time in spring or summer to the influence of the sun. The bones will retain their shape, and will retain their size, or be a little enlarged, but will fall into pieces if handled or removed with an implement.

Now let us see what has taken place:—the bone being about thirty-three per cent. of animal matter, mostly gelatine, (glue,) and sixty-six or sixty-seven per cent. of mineral matter, mostly phosphate of lime, with very little of the carbonate of lime, has undergone a fermentation by which the animal matter is nearly all separated from the mineral. But where has the animal matter gone? In the case above, not all of it had gone anywhere, for the writer says the odor was offensive. There would have been no odor whatever if the animal matter had all been separated. But most of it had left the mineral part, or the latter would not have crumbled to pieces. The principal value of the animal portion, which had left the bones, was ammonia, and where this had gone, depends upon the condition in which the manure was. If the surface was moist during the whole time that the bones were in it, then the ammonia had diffused itself about among the manure, where it would be retained by the moisture, to be used by plants, if the manure were plowed in soon after removal, or even if spread as a top dressing, provided it were spread in a rainy time,

and spread so evenly as to bring it into close contact with the soil. But if the manure was in a dry state from its surface downward to the bones, which would imply a high fermentation, approaching to *fire-fanging*, then the ammonia went into the air, and the greater portion of the value of the animal part of the bones was lost to the owner. If we are understood, it will be sure to follow as an inference, that animal manures should be preserved in a moist state, as thus the ammonia will be preserved. We do not mean drenched in water, for that would wash away the soluble salts, but moderately moist; and this rule, as far as it conveniently can be, should be observed in the preservation of barn manures, that neither the salts may be washed away nor the ammonia steamed away. But for the mineral part of the bones:—almost its whole value lies in the phosphate of lime. This, in such a case of fermentation, remains in the mass, as insoluble phosphate—a very different thing from the soluble super-phosphate of commerce, but still valuable, because we believe it becomes soluble in the soil, and constantly gives as great an increase of crops as the super-phosphate, but does not give it all the first year, nor the second—not as soon as the enterprising farmer desires his returns. Bones in large quantities should certainly be treated to sulphuric acid, and thus changed into super-phosphate of lime and sulphate lime, (plaster), both of which act quickly, and give an early return. How to dispose of the few bones that may be collected on a farm, is another question. They would not be worth the establishment of a super-phosphate factory, and there is some trouble in procuring sulphuric acid, and besides there are no bone-mills for grinding them. The farmer very justly says, they are not worth the time and trouble of manufacturing into super-phosphate. To deal with them as the writer above describes, is certainly better than to leave them as a nuisance about the farm. We think, however, there is a better way, and we will point it out in a future number. In the mean time, the bones should be preserved. N.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

CULTIVATION OF WHEAT IN NEW-HAMPSHIRE.

MESSRS. EDITORS: Wheat has been much neglected for a few years past, owing to the uncertainty of the crop in our vicinity, till the last two years, when the extremely high price of flour has induced our farmers to try wheat. In my opinion wheat can be grown in New-Hampshire on soil adapted to its growth, with as much certainty as any of the cereals. We are more likely to get a good set of grass after wheat than after oats or barley. Wheat injures the land less than the two latter crops.

The successful cultivation of wheat, in the first place, requires a soil adapted to its growth; in general, with us, a loamy ridge not liable to be too wet, or where the water will not stand after rains, or land that will, by good cultivation, produce forty or fifty bushels of shelled corn to the acre.

Second: break up the sod and manure twenty-five loads to the acre, and plant with corn. Work it well, and allow no weeds to seed after the corn crop is taken off. Late in the fall plough again, and let it lay as loose as possible, to have a free action of the frost of winter, which will pulverize the coarser particles of the soil and reduce it to a fine tilth. I apply no manure to the wheat after corn.

As early in the spring as the season will permit I harrow well, and if the soil is obstinate I take a sharp cultivator and go over it once or twice, and then smooth it down with a harrow, and sow the seed about one and a half bushels to the acre.

Seed should be well washed and mixed with lime before sowing, and if the ground is not too wet, smooth down with a light roller. Harvest as soon as the kernel is full and begins to harden, or when by a hard pressure between the thumb and finger, you can jamb the kernel, it is time to reap and cure it with care.

In case of a mildew, as soon as it is discovered, if the straw is green, reap and cure it well. Do not allow it to stand, for the kernel is bleeding at every pore.

As to varieties, much depends upon the earliness of the kinds sown; two or three days oftentimes makes half a crop. If the kernel is half full, the maggot will not injure the grain. A week gained here is of some importance. I cannot tell why it is that so many varieties that have been successfully cultivated since my remembrance, have ceased to be profitable and have passed away and have been succeeded by new and more profitable ones. Varieties seldom do well more than eight or ten years in one location. For the last ten years I have cultivated the red beard, Black Sea, but it has been gradually failing. The last spring I obtained a bushel and a-half of the Canada Club, from a distance of twelve hundred miles, and cultivated according to my system. The product was twenty-three bushels on about one acre of fine wheat land. We do not say that this was a great crop, but is a paying one for New-Hampshire. I also obtained one peck of the Fife (Russian) of my friend Averry, of Wolfboro, N. H. The yield was four bushels. A late plant I think better adapted to sod and late sowing. The plant is so late that it will not clear the maggot. It is at least ten days later than the Club, but is not liable to mildew. I have made preparation to sow about one acre of it on a sod, ploughed in September last, and manured with twelve loads to the acre. I intend sowing about the 25th of May to avoid the maggot. Where I now

reside, I have not failed with a crop of wheat for five years. It perhaps would not be out of place for me to give an opinion in relation to the Canada Club. For rich soil I think it has no equal that I am acquainted with, being proof against lodging, its early maturity, and the good quality of its flour, are sufficient recommendations, but for ordinary land it will not make straw enough. D. L. HARVEY.

EPPING, N. H.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

FARMERS' DAUGHTERS.

GIRLS, don't look towards the city with longing eyes; if you would preserve the roses fresh in your cheeks stay in the country air and sunlight.

Don't persuade your fathers to sell their farms and go into town to deal in "dry goods"; if you do, they will probably lose farms, goods and all.

Don't ape city customs by wearing cloth gaiters when you walk; they are not suited to rough country roads; or by inviting an evening party of your neighborhood friends to meet at nine o'clock; for that is their usual bed-time.

When you would adopt a custom, ask if it is suited to country life, not if it is fashionable in the city.

Don't paint your faces; exercise and the fresh air will do that.

Don't stand in awe of a young lady "just from the city." I should rather look for a wife where there is less paste and paste-board, among farmers' daughters who have the glow of health on the cheek and the sparkle of intelligence in the eye.

Don't look upon city beaux as a superior order of beings; you know nothing about them.

Rest satisfied to be farmers' daughters; you know not what you would sacrifice were you to change places with the envied city girls. Go to work and make yourselves and your homes as attractive and lovely as you can.

Read and study and use all the means within your reach to cultivate your minds. Select from your associates of both sexes those who are equally aspiring with yourselves, and meet in social gatherings to improve your conversational talents, and perfect easy, unembarassed manners.

Persuade your fathers to furnish means for supplying you with books and papers, and keep yourselves informed on the literature and history of the times.

Seek the acquaintance of those who are older than yourselves and

have superior intelligence, that they may advise you in selecting your reading and other pursuits.

Cultivate the graces that shine brightest in the domestic circle, and make the farm-house warm with a genial hospitality that is unknown in fashionable city blocks, and make the farmer's daughters rich in qualities that are not found in the hollow heads and hollow hearts of fashionable city society.

Encourage your parents with loving attentions and willing hands, and they will in nine cases out of ten gladly assist you in your laudable efforts for self-improvement.

Make you homes tasteful with those little inexpensive arrangements which women can manage so well. Be not ashamed of being familiar with all the business of the farm-house; study and practice until all its duties can be performed in the most acceptable manner.

Associate your brothers in your pursuits and in your efforts to make your homes centers of intelligence and taste, and you will be proud that you are farmers' daughters. You will have done for the world a great and good work.

JUNE ISLE.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

REMARKS ON "FARMERS AND FARMING IN NEW-ENGLAND."

FRIEND NASH:—I have much satisfaction in the receipt of your Journal for January, 1857, and more especially in the perusal of your remarks on farmers and farming in New-England. They are just what are wanted for the instruction and encouragement of *the farmers*, so far as I know and understand them. It is true there are gentlemen who do much to improve and beautify their neighborhood by the purchase of fertilizers, and the procurement of fine stock, and the production of crops corresponding; but the question still recurs, are these things any benefit to the neighborhood? When such a man gives out that he will take all the manure that is to be obtained at all the stables around, and pay a liberal price therefor, the keeper of the stable rejoices in his generosity; but how is it with the small cultivator, who is accustomed to pay for what he buys by the sweat of his brow? He cannot afford to pay an extravagant price, because he has not the money with which to pay it, so that while one man is made *joyful* many are made *sad*. This is not a fancy picture; in my mind's eye I have the reality, and not many miles distant from the window out of which I am now looking.

Do not misunderstand me as censuring such gentlemen; they have the right to do as they please with their own. All I mean to say is if they rightly understood what they were about, they would do bet-

ter. No mode of culture is worthy of encouragement that will not sustain itself. P.

Essex Co., Mass., Jan. 3, 1857.

We dislike to differ from this worthy correspondent; but we would rather say: "No mode of culture is worthy of" imitation *by the farmer who wishes to live by his art*, unless it "will sustain itself" and more; for in order to answer his purpose, it must sustain itself and sustain him besides. We beg our friend P. not to think lightly of what these fancy farmers are doing in the way of improving soils and stock. As for those paying a generous price for manure, we do not believe that much harm will come of it. If our foreign policy is right, we do not believe they will make farm produce so cheap but that the more practical farmers can afford to pay a fair price for manure also. N.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

GROWTH OF THE LOCUST TREE IN ESSEX CO., MASS.

Messrs. Editors:—The suggestions of your correspondent from Richmond, (Mass.,) in relation to the culture of the yellow locust, (pages 418 and 419,) are worthy of great regard. Within a few miles of me, are now growing plantations of trees of this description, that have sprung up within the last thirty years, of the value of more than $200 per acre; on land when planted, that was not considered worth $10 an acre. I particularly remember going with my father when a boy, more than fifty years ago, to an elevated piece of ground, then recently purchased by him and one of his neighbors, in a naked condition. They took with them a few locust sprouts that they pulled up on their farms at home, and set them out on this land. Now the entire hill is one of the best wood lots in the region round. What then cost them less than $200 is now worth more than $2000. I have not calculated the profits or loss on the investment; but this is certain, there has been no occasion for the payment of insurance, or a guarantee premium. This is more than can be said in relation to most loans of money, or investments in trade.

You, Mr. Editor, are a shrewd calculator, please tell your readers whether these old men made a judicious investment in purchasing and planting this barren hill with young *locust sprouts*. J. P. W.

January, 1857.

We do not profess to be so very good at calculating, nor has our correspondent given us the exact data. He says *above* fifty years ago. May this mean fifty-five years? If so, and if the schoolmaster was in the right who told us, in our boyish days, that money at 6 per cent. annual interest, doubles in eleven years, then this investment

should have doubled five times; and had the purchase money been $200 instead of less than $200, and the present worth $2000 instead of more than $2000, there would be a loss of just 1,200 dollars, because $200, by the old schoolmaster's roll, should have amounted to $3,200 in fifty-five years.

But we suppose that the good man made no allowance for losses; and our correspondent has said nothing of any income from the wood lot during the intervening time. Perhaps $200, after making due allowances for the slippery nature of money, and the more slippery quality of some borrowers, would not amount to more than two thousand dollars in fifty-five years, and then again we rather think the owners of those acres have taken off timber and wood enough to cover the interest on the outlay. We believe there is many a "naked hill" in that old State in which it would be possible to cultivate locusts, so as to get large interest on their present value in wood and timber, and to leave the land greatly improved for a future generation. It should be remembered also that the covering of these bald, rocky, unproductive hills with growing trees greatly improves the appearance of a country, mitigates the severity of drouths, and renders the climate more favorable to the cultivation of the intervening lands. We are by no means sure that, in a climate like ours, it would not be for the interest of farmers to have patches of wood growing on the poorer portions of their farms, even if the timber were not wanted and would bring them nothing when grown. As a covert for birds, with maws always hungering for insects, the wooded portions would be worth much, but they would be worth more as ameliorators of climate, and still more for their products of fuel and timber, when we take into the account the future wants of the country.

Thanks to our correspondents for their suggestions on this subject. They are important not only for that State, but for many others.

N.

EGYPTIAN WHEAT.—During the seven years foretold by Joseph in the land of Egypt, "the earth brought forth corn by handfulls," (Gen. 12: 47,) "seven ears on one stalk," (ibid, ver. 22.) It is not said certainly that this was wheat; but its description exactly corresponds with the *Triticum compositum* at present cultivated in that country, and also with the *mummy wheat*, discovered in a sarcophagus in Egyptian tombs, which had probably lain there for more than 3000 years, but which when planted vegetated, and has afforded us a new variety of that grain. I have some ears of this now before me, exhibiting the same phenomenon of "seven ears on one stalk." This wheat is made into Colne flour, and the London bakers use it to dust the kneading-boards. Thus we have the fact distinctly brought before us, that the wheat of that period possessed features in common—allowing for the changes effected by differences of soil, character, and cultivation—with that of the present day.—*Mark Lane Express.*

EDITORIAL CORRESPONDENCE.

In pursuance of our resolve to pass a portion of our time among the farmers, we left New-York in the wain of the old year, hoping to play a little by the way, and yet to reach Washington in time for the U. S. Agricultural Society's annual meeting on the 14th day of the New Year.

A week's delay in Central New-Jersey brought us acquainted with many excellent farmers. Better farming than we have seen here, it has seldom fallen to us to witness. A fact here, and a moral;—we judge that not more than one farmer in three, in all this region, takes an agricultural paper; and now, reader, if you should anticipate our moral, and infer that the good farming of which we have spoken, is a legitimate consequence of not reading agricultural papers and books, we are ready to head you on that track. It is not all the farming hereabouts, that is so good. A few farmers in each town are neck and breast ahead on the track; and these are the very ones who read on the subject, while the others rail at book farming. And yet these decriers of books and papers are following their neighbors, who read the agricultural journals, but are following them afar off, much farther than is for their interest.

The argument of these bibliophobians, if we may coin a word to mean book-haters, is that the farmer should be *independent*, should exercise his own judgment. Aye, that is right, but we should have a judgment first to exercise, and the better informed his judgment, the more independently and the more safely he may follow. If a man walking in Broadway or Chestnut street, on a moonless night, should blow out the street lamps for the sake of following his own eyes, he might find his eyes of little use. They might lead him against an awning pole, or an assassin's knife. The lights and the eyes would do better together. So with books, and the farmer's judgment. If light is a help to the eyes, books are a help to the judgment as well. Don't blow *out* the lights if you would walk safely among awning-posts and lamp-posts, and more dangerous men and women; and don't blow *at* the books, if you would run for a high prize from the soil.

There is *folly* in books; yes, and there is *wisdom* too—there is *knowledge*, and who are those that hate knowledge? Ask Solomon. We do not like to use a harsh term. If the tendency of reading was to take away a farmer's judgment, to make him less a thinker, to leave him less independent, we would seize the plough and scout books. But we know it is not. It gives him a better-informed judgment, makes him conscious of high discernment, self-reliant. It lifts him up to the rank and respect and social influence, which of right belong to his all-important avocation. Astonishing is it, that these decriers of knowledge do not perceive that they are doing all they can to depress their own class. If they could have their own way, they would make the American farmer what the tillers of the soil are in too many foreign countries, peasants, boors, to be looked down upon by every other class. Thank God they cannot. They may ruin themselves, but they cannot ruin all farmers, and ruin the country by ruining them. If they do not mind their policy, they will find themselves so far behind the world soon, that the world will not hear them when they call after it. They will cry, Stop! stop! but the world won't stop. It is not so much for the world's sake that we write as for theirs. The world

will go along in spite of them. For their own sake we want them to jump on and go with it. Otherwise they will find their more progressive neighbors employing labor, purchasing fertilizers, manufacturing rich composts out of home materials, ploughing as deeply as the nature of the soil admits, under-draining, pulverizing, enriching, growing crops at a fair profit, when they can only grow them at a loss. Get on, ye scoffers at books, journals, knowledge, before it is too late. How sorry we should be to see you coming to a seedy, tattered old age. The car of improvement is wide enough for you all.

In a lecture in Central New-Jersey, we explained how a farmer may gradually bring up a run-down farm, so as to get better profits on his outlays than to cultivate it as it is. After laying the thing out in terms to be understood and appreciated by intelligent, observing, reading men; but which your unthinking, unreading farmers, followers of those who left the earth in other times, never will understand, we cried out, "Is it so, or is it not? we pause for a reply." The reply was, "It is a great deal cheaper to make land better than to make it worse." It came from men, whose land, buildings, and stock, show that they know what they are about. One farmer added: "We can't afford to wear out land." It is just so; and if the land is already run down, the cultivator cannot afford to crop it, without bringing it up.

One farmer among our hearers told us that his farm of 175 acres, now divided into twenty-five acre lots, cost him less than $10,000 seven years ago, and that he could now take $18,000 for it, and that without having expended any thing of consequence on the buildings and fences, his main object having been to raise great crops in such a way as to keep the land constantly improving. Farms in the immediate vicinity, now in about the same state as seven years ago, had risen but little. The rise on his, was far more a consequence of high cultivation, than of any general advance on land. And yet this farmer was confident that he had cultivated no more highly than would give him the best profits, as he went along, or than would have been for his interest, if he had been cultivating another man's land on a ten years' lease, a very different idea from the common one, that the most profitable way to cultivate a rented farm is to spoil it.

We hope to receive from this gentleman, for a future number, some statistics of his farming, showing the amounts expended for labor and manures, together with amount of crops, receipts for the same, etc.

The New-Jersey farmers have two great advantages over almost all others;—one in their proximity to the two largest cities in the country, and the other in the inexhaustible supplies, and the wide diffusion of the green-sand marls of this State. The New-Jersey Fertilizer Company is offering this marl at seven cents a bushel. We have before assured our readers that we believe it cheaper, delivered as they are delivering it, on shipboard, at that price, than any foreign fertilizer brought to our market. Within the last ten days, we have conversed with scores of farmers who have used it at a cost of ten to fifteen cents a bushel, according to their distance from the nearest pit, and not one has expressed a doubt of the economy of its employment at either of those prices. To one we said: "From its composition, containing so much potash, it ought to be good for potatoes." His reply was that, "It is good, first rate, nothing better." We now repeat with renewed assurance, that wherever a farmer is so situated that he can get it to

his land without much increased expense from land-carriage, it is a cheap fertilizer, probably as cheap as any other now in the market.

In Philadelphia, it has been our happiness to attend some of the meetings of the Philadelphia Agricultural Society, and to become acquainted with its officers and members. This is the oldest Agricultural Society in the Western continent. It is certainly among the most useful. David Landreth, Esq., is the retiring, and Aaron Clement Esq., the incoming president. It is pleasant to see such men as these, and their associates, Elias Boudinot, Dr. Emerson, Dr. Elwin, and others, banded together in so good a cause. This Society sends ten of its members, delegates to the U. S. A. Society's annual meeting at Washington on the 14th of January.

Peter A. Browne, Esq., the distinguished trichologist, is a resident of Philadelphia. Some eight or ten years ago, Mr. Browne, we believe, after having secured ample means by a successful engagement in commerce, devoted himself to the study of natural history, particularly to investigations with regard to hair and wool, taking for his motto, "*Ducit amor Patriæ*," implying that he would undertake something for the good of the country. He has made the undertaking, and as we believe, has succeeded. That great good will result from these eight or ten years' study and research, there can not be a doubt. American agriculture will be the first recipient. If Mr. Browne's discoveries should add more to the material wealth of the country than all the gold yet sent from California, we should not be surprised; as usually happens when an inventive mind takes to a new track. A Fulton cannot dream of a steamboat without meeting sneers from the high and the low. Mr. Browne met with no encouragement from individuals, for long years of patient investigation, nor obtained any aid from the government, though his researches involved great expense. He persevered nevertheless; our government at length afforded him some small aid; several European governments have favored his inquiries, and he has built up a new science, has enlarged the boundaries of human knowledge, and has already ascertained several important applications to the industrial arts.

In a future number we will give an outline of Mr. Browne's researches and discoveries on the subject of hair and wool; and we are quite sure that our readers will not only be amused, and intensely interested in the facts ascertained, but will regard them as of very great practical value. At present, we will only say, what we suppose nearly all know very well, that the fleeces of some sheep will make a very beautiful flannel, most tempting when we see it on the merchant's counter, but almost worthless, because it shrinks even by the most careful washing. Those of other sheep make a flannel that shrinks, perhaps, less, but shrinks unequally, becomes uneven, full of deviations and depressions, looks so badly, that poor Bridget would dread a scolding after she had washed it, and mistress would be out of sorts, and turn the innocent girl out of place. Some wool will not make a cloth that will full equally well in the mill, and give a smooth, even surface, fit for outer wear. Of these and other evils, too many to name, Mr. Browne's investigations have ascertained the cause and an absolute and sufficient cure.

A company it seems has been formed at Philadelphia, with a capital of $100,000, to be enlarged if necessary, for the purpose of manufacturing a substi-

tute for Peruvian guano, on a patent of Prof. Hare, to be called Hare's Patent Concentrated Guano. The character of the men engaged in it looks very much as if the experiment would be thoroughly made, and is a guarantee, that no unrighteous attempt will be made to gum the public. Success to them. It is a good movement for town and country. May the time not be far off when the Peruvian Government may hold its guano as high as it pleases. Our cities will ere long concentrate and render portable all the fertilizers the country will want, if not by Prof. Hare's mode, by some other.

We were delighted at Wilmington, Del., with the working of Allen & Osmond's Improved Patent Power Loom, for weaving ginghams, plaids, shawls, handkerchief, etc., etc. To see these looms, each carrying a dozen shuttles, each having a differently colored spool, and invariably throwing the one required to make the desired check, all so rapidly, so life-like, so as if endowed with thought and the power of volition, is certainly a triumph of mechanical skill not often witnessed.

At Havre de Grace we listened to a temperance lecture by a *Hinglishman.* Between real wit and unsuccessful efforts to be witty, there is a heaven-wide difference. Jokes that have been laughed at a quarter of a century, in every city, and village, and rural district, grow stale. If such lecturing is useful in John Bull's dominions let them have it; but we doubt its adaptation to brother Jonathan's latitude. A rowdyish boy or two and one man, if man he could be called, undertook to get up a disturbance; and we thought the promptness with which the people put them into order, the more honorable, from the fact that the lecturer gave, as we thought, too much occasion. But there can be no sufficient reason for putting down a meeting by such means. We have a right to keep away, but not to prevent those hearing who choose. N.

ACCLIMATION OF VEGETABLES.

The French Government are making experiments at Algiers, in the acclimation of vegetable productions. They have a specimen of the Ficus Elastica, or Caoutchouc tree, which seems to thrive. It has grown to be eighty centimeters in circumference, near the ground, and some caoutchouc taken from it was exhibited at the Universal Exposition. The Wax Palm, from China, is also thriving. The Gutta Percha tree and the Quinine, are not so successful. We commend such experiments to the skill and care of gardeners and others of our own country. We have no doubt that many of the products now confined to the Eastern continent, might be made productive in this. No doubt the physical and chemical properties of some would be considerably modified, but the product would be essentially the same. As in our North American Flora, many species of flowers which have been regarded as "new" are now considered the same with European species, modified by geographical position. Scores of such species may be enumerated in the list of flowering plants, among which are included some of the most common of herbaceous plants, as the Ranunculus repens, or Butter-cup, the Solidago, or Golden rod, etc., as well as shrubs, as the Ribes rubrum, or Currant, and forest trees, including the Castanea vesca, (Chestnut) Betula alba, (white Birch) and others. P.

Mechanical.

THE STEAM PLOUGH.

A CORRESPONDENT in Illinois of great mechanical ability, writes us in reference to our recent paragraphs on steam ploughs. After writing about other matters, he says:

"In regard to a steam plough, *it must be built.* I may not be the one to do it, but that there are men enough in the United States that can do it, no one having any faith, will doubt, though you do not interest yourself farther with the subject. I find that the fools are not all dead here. I have several offers of all I need, should I undertake it, from those who have greater faith in my abilities than I have myself.

"It is a question as yet undecided in my mind, not having made the necessary close calculation, as to the profit, when it does work. I only, in a few leisure moments, made this calculation; that with a six-horse-power, forty acres of prairie can be broke or ploughed in a day. In fact, I do not see a single obstacle in the way.

I *do know* what I have done. I made and used the first horse-power corn-shellers in the West, and used them more than two years before I applied for a patent—and of course was denied one—all of the varieties are now using my improvements. I made the first corn-planters, the first drilling-machine ever used in this State; made two two-horse-drills for the Swedes colony, in Henry County, and I suppose they are in use yet—have drills attached to the plough, and design between this and spring, to make one to plant on the furrow as turned by the plough. Furthermore, I have made numerous machines that satisfied others, but not one that ever satisfied myself.

"Yours, H. I. H."

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

ANTI-FRICTION METALS.

MESSRS EDITORS:—In your two last numbers you noticed some useful inventions that were exhibited at the recent Fair of the American Institute, as deserving a high rank in the scale of useful modern discovery; and among them all may be classed Dr. Lawson's Anti-Friction Metals; several fine samples of which, were shown, together with his ingeniously arranged Dynamometer, for testing the same, and showing practically, their superior qualities over every other journal or box alloy.

By a due observance of the principles of science, physical and chemical, in the application of heat to metallic compounds, the Doctor has gained great knowledge of the proper combinations of metals for this valuable purpose; and his truly valuable anti-friction metals could be usefully and profitably employed on all railroads, steamboats, and other machinery. These metals may be truly noticed as a valuable achievement in the arts, for the public good. By them, alloys are obtained, which were hitherto unknown; and which seem very fully to supply a long-sought desideratum in this department of mechanics; for it is

a well-known fact, that a large proportion of the difficulty in operating machinery successfully, is caused by an unequal wear of the rubbing parts, and serious accidents are attributable to this cause.

During the last half century, but few scientific men have attempted a remedy for these mechanical evils; owing, perhaps, in a great measure, to the extreme difficulty in selecting the most unctuous metals, together with a proper application of heat to them, in order to produce all the required results; or it may be true that a combined chemical and practical knowledge has not been brought to bear upon the principles, from whence originate alloys possessing great anti-friction qualities.

Some feeble efforts were made by Babbitt, Firth & Garratt, to interpose successfully between friction surfaces a composition to equalize their wear; but little was accomplished, until Dr. Lawton's composite alloys appeared, showing a superior fitness; and their proper application will soon produce a complete change in the friction surfaces of mechanism, causing uniform wear, and thus security, ease, and comfort, in their operations.

Great skill has been exercised in this invention, and Dr. Lawton's practical researches and careful experiments for the last few years, have been brought to bear upon the necessities of the public to discover a tenacious, tough, and fibrous alloy, that may be capable of sustaining itself under any ordinary pressure, without the protection of an outer casing of harder metal, and at the same time possessing unsurpassable anti-friction qualities for locomotive axle-bearings, cranks, piston-rings, water-wheel steps, car-boxes, of any size or pattern; likewise machinery-bearings of any kind, light or heavy, fast or slow. By a variation of the proportions of the constituents of these metals, an alloy may be rendered very hard, when circumstances require it; or of a medium tenacity, or very soft, and run into a shell, as many other metals are. When these metals are properly made, they present a compact lubricous surface, capable of receiving a beautiful polish, and may be successfully employed in the manufacture of numerous useful and ornamental articles, where brass, and the like metals, are now used.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

MANUFACTURE OF STEEL FROM SCRAP IRON.

Messrs Editors:—Among the many inventions which have signalized this iron age, the following is too important to be omitted. It consists in a process by which steel is made directly from scrap iron. The mode is very simple, and is mainly as follows. About fifty pounds of wrought iron is cut up into small pieces and placed in a crucible. To this, a few chemicals are added, whose cost does not materially increase the expense of the operation. The crucible is then placed in a furnace, melted, and poured into molds in the same way as blister steel. The product is cast steel. By varying the quantity of these chemicals, the steel can be rendered more or less hard as desired. By a particular arrangement, a soft and very tenacious kind of semi-steel can be made, suitable for car-wheels, etc.

This process is much cheaper than the old one, as the poorer kinds of iron make as good steel as the best Swedish. Cyanogen, which is the most important ingredient in the chemicals, has long been used in the form of prussiate of

potash, for hardening the faces of hammers, and *surfaces* of iron generally, by a process called *case-hardening;* but the inventor's claim consists in the manner of application of the cyanogen, viz., by melting it with the iron.

The invention has been patented in this country and Europe, and a Company is now in operation under the name "The Damascus Steel Company," for manufacturing it on a large scale, and by its cheapness as well as superior quality, it bids fair to revolutionize many branches of manufacture. W.

Clothes Driers.—In a recent list of patents, we mentioned a *Cloth* Drier, by Mr Merrill of Andover, N.H. It should have read a Clothes Drier, and he gives us the following description of it. "It is a reel on the top of a post, so arranged as to tip down on one side, so as to put the clothes on the line, when it is raised up. It is high enough to walk under the clothes without inconvenience.

Manufacturers of Providence, R. I.—We find in the *Providence Journal* the following statistics of that beautiful and enterprising city:

"The city of Providence contains seventy-three steam engines, and within one hundred rods of the city line are twelve or fifteen more, that for all practical purposes belong here; fifty-six jewelry establishments, employing fourteen hundred hands, and yielding an annual product of $2,771,600; three bleaching and dyeing works, employing three hundred and fifty hands, and finishing 50,980,000 yards of goods; twenty-two manufactories of machinery, steam engines, boilers, castings, etc., employing two thousand and sixty-two hands; 9,450 tons of coal, 11,095 tons of pig iron, 9801 tons of other iron, and producing annually 33,800 stoves, 9,000,000 pounds of nails and spikes, 30 steam engines, 220 boilers, 3,584,000 pounds of nuts, etc., and other articles, to the total value of $2,561,000; two screw factories that yield an annual product of $1,086,000; two butt factories that produce $285,000, and a great variety of smaller manufactories, yielding together an annual product of $17,415,740.

Magnetism as a motive power was made a practical question as early as 1769, when one Rist. D. Rustigon, of Holland, announced that he could make a ship without sails, go faster against wind and tide, than any sailing ship now goes with the wind and tide.

Purification of Gas.—A new process has been discovered for purifying gas A mixture of sulphate of iron, lime or saw dust, is introduced into the purifiers of the gas works, which, after a sufficient exposure, is removed and replaced by another mass of the same mixture. The product is a dark-colored substance, granular, tolerably dry, with a strong smell of gas.

Material for Paper.—It is now proposed to use hop stalks in the manufacture of paper. The material is immersed in pits till a slight fermentation is produced. The fibre is then easily separated from the pithy and woody portions of the stalk, as in flax and hemp. Repeated steamings and washings may be required to remove the gum and resinous matters.

Jute, an East Indian grass, is also stated to be capable of being manufactured into very fine paper. It is sometimes used to adulterate silk. It is also used as bagging.

An Apparatus for Lowering Boats, when the ship is under full sail, has been successfully attempted and patented by a Mr. Clifford. A boat laden with its entire crew, with masts, spars, and necessary gear, was lowered from the ship *Oneida*, when she was at full speed, with a fall of nearly six feet from the davit-heads to the water.

A new Electric Machine has been contrived, consisting of an endless band of paper, placed over two rollers covered with silk. It may be used in an atmosphere unfavorable for a glass machine.

The Electric Light has been so improved by scientific experimentors in Lyons, as to burn steadily for twelve hours.

Glass Journal Boxes have been so improved as to remove the objections hitherto urged against them. The glass and iron are so firmly united, that a heavy blow upon the glass will not produce a fracture. It is the invention of Mr. Campbell, of Columbus, O.

Gas Proof Rubber Pipes.—We have seen an article of India rubber, prepared by Mr. W. F. Shaw, manufacturer of the gas stoves we have heretofore described, which is pronounced impervious to gases. He uses a chemical composition, which combines with the rubber, which renders it impervious to gas while it retains its elasticity. It costs but little more than ordinary rubber tubes.

An Iron Car is in process of construction, at Paterson, N. J., designed for sixty passengers. It will contain no wood-work, but will be lined with several layers of thick paste-board.

We purpose hereafter to illustrate these inventions, and we invite inventors and patentees to forward to us such engravings as may be appropriate to our pages. We make no charge for such, unless more space is occupied than would be desirable for general information, irrespective of individual interests. P.

Recent American Patents.

SELECTED AND PREPARED BY M. P. P.

Lathe for Cutting Fluted Mouldings.—This patent includes two adjustible rotating cutters, revolving in opposite directions attached to shafts which are fitted into frames, and worked in guides. It is designed for cutting spiral fluting on the legs of tables and other kinds of furniture, whether cylindrical or tapering.

Turbine Wheel.—A patent has been obtained by Stephen K. Baldwin, Guilford, N. H., for an improvement upon the Fourneyron Turbine Wheel. He extends the bucket further inward towards the centre of the wheel, in such a position as to receive the direct action of the propelling water against the extended bucket, on the outside of the wheel.

Polishing Leather and Harnesses.—This invention, by Wm. Crane, Brooklyn, N. Y., is designed to supersede the hand-ball used in finishing leather, and moves the creasing ball, heretofore managed by the hand, by machinery.

The Manufacture of Cotton Yarns directly from the gin is supposed to be practicable by the use of an invention patented by Geo. G. Henry, Mobile, Ala.

Stitch for Sewing Machines.—A. F. Johnson, Boston, Mass., has an invention for making a stitch of a single thread by throwing a shuttle and thread through a loop formed from the shuttle thread.

Turning Circles for Carriages.—Geo. Kinny, Milford, N. H., has patented an annular box plate composed of two circles, so constructed as to exclude dirt

from the bearing surfaces of the plates and preventing their rapid wear. He also provides against noise and jars.

Disk for Shelling Corn.—An annular concave shelling surface, with other adaptations, is patented by Mr. J. P. Smith, Hummelstown, Pa.

Gas Cock and Swinging Joint.—Mr. C. F. Thieme, of Philadelphia, has patentented a new arrangement for securing that very important matter—tight swinging joints in gas tubes. It requires an engraving to explain it properly.

A new Adjustible Cut Off has been devised, for steam engines, by William Wright, Hartford, Ct. His claims cover "the cylindrical hubs, disks and their adjustments," also "flap valve checks constructed and combined with the flap valve."

Hand Corn Planter.—T. A. Chandler, Rockford, Ill., has a patent for a new Hand Corn Planter.

Raking Attachment for Harvesters.—A new patent is secured by Wm. Whitely, Jr., Springfield, Ohio, in which the teeth of the rake extend across the platform and receive a reciprocating motion through a connecting rod and crank.

Sewing Machines.—A patent has been obtained for a cheap family sewing machine, by Wm. C. Watson of New-York. He claims "the revolving and reciprocating looping hook and the inclined and grooved brace-plate," so placed beneath the cloth as to deflect the lower end of the needle to one side of its path, whereby its vibrations are prevented, and it is less liable to be broken. It will cost only about ten dollars.

Self-Acting Rakes for Harvesters.—Mr. Jesse Whitehead, Manchester, Va., has a patent involving the following claims; a combination by which the rakes operate together, and independently of each other, a rod for the purpose of preventing the rake heads from binding on their ways, and a movement for varying the size of every gavel.

Feeding Printing Presses.—A patent has been secured by Mr. Moses S. Beach, Brooklyn, N.Y., for apparatus which seizes the back end of the sheet and returns it to the types for a second impression.

Backing Electrotype Plates.—Messrs. Wm. Filmy & Edward Bookhout, New-York, have patented a box so provided with ledges, spiral springs, etc., as to secure perfect backs to electrotype plates, without the risk of injury by warping, or irregular expansions, heretofore a source of considerable difficulty.

Drying Cylinders.—An invention is patentented by Horace W. Peaslee, Malden Bridge, N. Y., for a spiral tubular heater, upon a non-conducting cylinder, with an exterior metallic casing.

Wrench.—A new wrench is patented by Oren O. Witherill, New-York, which by pressing upon the handle in one direction seizes the nut, and by an opposite pressure sets its free, whatever the size of the nut. This must be a great convenience.

Straw, Hay and Corn Cutter.—A "contrivance" has been invented by Mr. Loring Weeks, now of Boston, Mass., which seems to simplify and operate economically, in comparison with many others. It has but one straight knife, which can be made or repaired by any blacksmith, which also feeds the machine. It cuts upon a strip of raw-hide. The length of the cut is adjustible from a fourth of an inch to two inches and a half by turning a screw.

LATHE FOR IRREGULAR FORMS.—Mr. Lemuel Smith, Plymouth, Ct., under a recent patent, claims two expanding jaws, placed on the carriage, which works on the bed of the lathe, in combination with the pattern. The cutter is attached to one of the jaws.

RIGHTS OF PATENTEES.—An important question was involved in a recent trial under a patent, in the U. S. Circuit Court at Providence, R. I., on the 24th ult., Judge Curtis presiding. The parties were J. S. Winsor against Kendall and others, for infringing the plaintiff's patent, granted for a harness knitting machine, on the 2d of January, 1855.

The case is an uncommon one, and we call the attention of manufacturers and inventors to it, as it relates to the use of machines, constructed before the patents for them are issued. The plaintiff charged defendants with an infringement of his right, in using (after his patent was granted,) ten machines constructed by them before his application for that patent. The point of defence was, that the plaintiff had, in legal effect, licensed the making of these machines; and the question presented to the jury under the Court's charge, was, "Did the defendants construct their machines under the belief, authorized by the plaintiff, that he consented and allowed them so to do?" A verdict of $2,000 damages was given to the plaintiff by the jury in half an hour after the case was submitted to them.—*Scientific American.*

THE value of a crop depends much upon its being sown or planted early; a few days' delay will often reduce the yield one-half, and occasion a vast amount of unnecessary grumbling about the weather.—*Exchange.*

Except Indian corn. Plant that as soon as the ground is warm enough to bring it up quickly and carry it "right along," but not before.

THERE are few men whose friends will build them a monument so honorable or so durable as he builds for himself, who plants an elm, maple, or other good shade tree.

Recent English Patents.

SELECTED AND PREPARED BY M. P. P.

THE COMPARATIVE VALUE OF COKE AND COAL IN LOCOMOTIVES.

WE learn by our foreign scientific journals, that this was one of the topics discussed at a meeting of the Institution of civil engineers, in November last. This comparison was made by noting the results of the performances of five engines burning coke, and five engines burning coal, on the main line of the London and South Western Railway. These experiments and the calculations based upon them, were of course based upon given prices for coke and for coal, which would not suit the railroads of this country. But with such modifications as may be required to bring the estimate to the value of these articles in our own country, those experiments are worthy of especial notice and we invite a careful consideration of them. The statements below are found in Newton's London Journal. P.

A comparison of the results of the performances of five engines burning coke, and five burning coal, on the main line of the London and South-

Western Railway, between London and Southampton and back, showed an average consumption of coke per mile of 20·7 lbs. with 10·4 carriages per train, against a consumption of coal of 18·9 lbs. per mile with 12·2 carriages per train. From this it would be seen that, that there was a saving of 8½ per cent. in consumption of fuel in favor of coal, whilst the number of carriages per train was 14¾ per cent greater. The average cost of coke was £1. 7*s.* 6*d* per ton, and of coal 18*s.* 6*d.* per ton, giving a cost of 3·04*d.* per mile in the former case, and of 1·87*d.* per mile in the latter; or a saving of 1·17*d.* per mile with trains 14¾ per cent. heavier; but notwithstanding this, the saving of fuel amounted to 38 per cent., and if the loads had been equal, then the saving would have amounted to 46½ per cent.

It was stated, that on the Shrewsbury and Hereford Railway, the results of burning all coal in the passenger engines—in place of half coal and half coke—taking the price of coke at £1 and of coal at 11*s.* per ton, was a saving of 0·69*d.* per mile. These engines when burning only coke could never be got below 18½ lbs. per mile, whereas now they only burn 18·9 lbs. of coal with the same average load and running at the same speeds. With the four-wheeled coupled goods engine there was a saving of 2·05*d.* per mile in the cost of fuel, by burning all coal, instead of one-third coal and two-thirds coke, with an average load of 168 tons in both cases. With the six-wheeled coupled goods engines, under similar conditions, the saving was 2·69*d.* per mile, with an avearge load of 188 tons. There was no difficulty in getting up steam, and there was a complete absence of all nuisance from smoke, which hitherto had been the chief difficulty to be overcome in the use of coal in locomotives. It was explained that the fire-bars, which were very thin, so as to allow of the free passage of air, were placed in a rocking-frame, by which the level could be varied, according as the condition of the fire and the work to be performed demanded.

On the Northern of France line scarcely any other fuel than coal was now burned, and the economy resulting was fully one-third in money value. It should be stated, however, that the coal used was the dry semi-bituminous coal of the Mons colleries, which was of excellent quality, whereas the coke was not good. The saving of 15 per cent. arising from the heating of the feed-water was admitted. It would, however, have been more conclusive to have tried coal and coke alternately in the same engine. The apparatus used in France was very simple, being merely a horizontal arrangement of the fire-bars, which were placed transversly, and in steps across the fire-box, so as to have wide air spaces, without risk of losing the fuel through the spaces.

In answer to questions, it was stated, that the boilers of the South-Western coal-burning engines were only a very little more expensive than ordinary boilers, and there did not at present, after very heavy running, appear to be any evidence of more rapid destruction of tubes, or of fire-boxes, than when burning coke. Indeed there was reason to believe that the particles of coal in combustion would do less mechanical injury to the tubes than the bits of hard coke rapidly traveling through.

Thin and careful firing was recommended, and with that there was no reason why the same results should not be obtained in the locomotive boiler with coal, as in a stationary boiler, under which coke would never be considered necessary.

It was generally admitted, that there was an entire absence of smoke in the engines of the South-Western line, which was not the case on several other lines where the system had been tried—yet bituminous coking coal had been tried, with the same good results. It was evident then, that the fire-tiles had considerable influence in producing that effect, as well as in enabling the engines to run home light, with scarcely any expenditure of fuel; the heat previously absorbed by the fire-tiles being given out again when required, and thus keeping up the steam.

Reference was made to a discussion at the Institution in 1839, where it was stated that, "to say that the 15 cwt. of coke produced from a ton of coal, was equal in heating powers to the original ton, was to say that there were no heating powers to be derived from the 9 or 10,000 cubic feet of gas produced, or

the 10 gallons of tar." Now it was possible that, in the arrangement of his boiler, Mr. Beattie had just arrived at the rate of combustion, and mode of employing the fuel, to take the utmost advantage of the whole of the carbonaceous matter and all the inflammable gases contained in the fuel; if this were true, the progress was one of the most remarkable steps towards perfecting the locomotive engine.

In summing up the discussion it was observed, that although the subject had been treated with great ability by Mr. Clark, and the documentary evidence brought forward during the discussion was very conclusive in favor of the system, which indeed appeared to be generally admitted as a great and economical improvement, yet there still remained much to be done, practically, and to be described to the Institution. There were still several important discrepancies to be cleared up; and at this moment, when, for example, in India it would be most important to burn only coal, as indeed had been done on the East India Railway for some time, the best methods were most desirable to be attained, and the descriptions should emanate from the Institution.

Pile Driving Machine.—Mr. Robert Morrison, of Newcastle-upon-Tyne, has patented a machine or apparatus for driving piles by the direct action of steam, by which two or more rows of piles may be driven simultaneously without the necessity for any lateral or transverse movement being imparted to the pile driving mechanism, and consequently the expense of driving temporary piles and erecting platforms for the machine to traverse laterally upon, from one row of piles to another, is obviated.

According to this invention, one, two, or more steam cylinders and driving rams are employed, according to the number of rows of piles to be driven at one time, the distance between such cylinders and rams corresponding to the width between the centers of the rows of piles. The cylinders and valve gearing are carried in suitable supports on one end of a traveling carriage on wheels, and a vertical tubular boiler and small steam-engine for hoisting the piles and raising the cylinders when they have each driven a pile, are carried at the other end of the carriage. The boiler is fitted with a conical or tapered fire-box, the contracted end being uppermost. As fast as each pile in a row is driven, the machine is traversed forward between the rows to the next piles, and so on, until the whole of the piles in each row are driven. The driving rams are made solid, and the pistons are forged or cast in one piece therewith. A stuffing-box is fitted on to each end of the cylinders, and the driving rams work through both the stuffing-boxes, which thus serve as guides without the necessity for any other means of steadying them during working. The lower end of the ram, or that part which works through the lower stuffing-box, is made cylindrical, whilst the upper portion, working through the top stuffing-box, is made square, to prevent the ram turning round. Or in place of making it square it may be first turned cylindrical, and then have one side planed off, or it may be simply fitted with a feather on one side; any other form, however, would answer other than cylindrical.

The valves of the steam cylinders are so arranged that the steam may either be admitted on the underside only of the pistons for the raising rams, and then allowing such rams to fall by their own gravity to drive the piles, or the steam may be admitted on each side of the pistons, so that the force of the blow may be increased in proportion to the pressure of the steam. In the former case the upper stuffing-box will not, of course, require packing, but will merely serve as a guide to the ram. The small steam-engine which it is proposed to employ for raising the cylinders after they have done their work, and hoisting fresh piles to deposit under the rams, is an inverted trunk engine, the lower end of the trunk being flattened to such an extent as will balance the weight of the piston trunks and connecting rod.

New Castors.—A new form of Castors, for household furniture, has been invented in England, which is as follows: The revolving part, which rests upon the carpet or floor, is a sphere, or ball, enclosed below its middle line in a metalic

case, which at the top rests upon another small ball, both being free to revolve in any direction desired. The top of the smaller second ball rests upon a smooth glass surface, or upon any hard metal which will produce but little friction.

Improvement in Envelopes.—A mode of preventing a letter enclosed in an envelope from being read through the envelope, a process has been patented for printing and ruling in various colors over its interior surface, by which the whole interior is rendered confused, and every part of the enclosure is made illegible.

Gas Works in Great Britain.—The number of gas works in Great Britain, at the present time, is stated to be 876, employing, collectively, a capital equal to $62,500,000, on which an average annual dividend of 5 per cent. is paid. The number of person employed in the manufacture, is about 24,000.

The quantity of gas annually produced in these works is 10,800,000,000 cubic feet, requiring for its production, the consumption of 1,350,000 tons of bituminous coal. Owing to the greater cheapness of coal and labor in Great Britain, the gas is furnished to consumers at $1 per 1000 cubic feet, about one fourth of the price paid in this country.

A New Calculating Machine.—The French *Moniteur* gives some interesting particulars of a new calculating machine—from which we extract the following passages: "M. Thomas, of Colmar, has lately made the finishing improvements in the calculating machine, called the arithmometer, at which he has been working for upwards of thirty years. Pascal and Lebnitz, in the seventeenth century, and Diderot at a later period, endeavored to construct a machine which might serve as a substitute for human intelligence in the combination of figures; but their efforts failed. M. Thomas's arithmometer may be used without the least trouble or possibility of error, not only for addition, subtraction, multiplication, and division, but also for much more complex operations, such as the extraction of the square root, involution, the resolution of triangles, etc. A multiplication of eight figures by eight others is made in eighteen seconds; a division of sixteen figures by eight figures, in twenty-four seconds; and in one minute and a quarter, one can extract the square root of sixteen figures, and also prove the accuracy of the calculation. The arithmometer adapts itself to every sort of combination. As an instance of its wonderful powers, we may state that it can furnish in a few seconds products amounting to 999,999,999,999,999,999,999,999,-999,999. A marvellous number, comparable to the infinite number of stars which stud the firmament, or the particles of dust which float in the atmosphere. The working of this instrument is, however, most simple. To raise or lower a nut screw, to turn a winch a few times, and, by means of a button, to slide off a metal plate from left to right, or from right to left, is the whole secret. Instead of simply reproducing the operations of man's intelligence, the arithmometer relives that intelligence from the necessity of making such operations. Instead of repeating responses dictated to it, this instrument instantaneously dictates the proper answer to the man who asks it a question. It is not matter, producing material effects, but matter which thinks, reflects, reasons, calculates, and executes all the most difficult and complicated arithmetical operations with a rapidity and infallibility which defies all the calculators in the world. The arithmometer is, moreover, a simple instrument, of very little volume and easily portable. It is already used in many great financial establishments, where considerable economy is realized by its employment. It will soon be considered as indispensable, and be generally used as a clock, which was formerly only to be seen in palaces, and is now in every cottage."—*London Athenæum.*

Good Paste.—Dissolve an ounce of alum in a quart of warm water; when cold, add as much flour as will make it the consistence of cream; then strew into it as much powdered rosin as will stand on a shilling, and two or three cloves; boil it to a consistence, stirring all the time. It will keep for twelve months, and when dry, may be softened with water.

Domestic and Miscellaneous.

Crops, Weather, etc., in Indiana County, Pa.—A correspondent at Newman's Mills, in the County above named, under date of December 8th, writes as follows:

The past season, from the first of June till near the last of September, was on the whole, a very fine one. There were some three weeks in July that vegetation seemed to suffer for want of rain. Hay, and grain of all kinds were got in in fine condition. Wheat and Rye are rather scarce and dear. The harvest in these was small and light. So also of the hay crop. Oats are quite plenty and good in quality. Corn, owing to bad seed and early frosts, is rather a small crop. About half of what there is, is frost-bitten and soft. Buckwheat was quite good and rather plenty. Potatoes were excellent in quality but rather small in quantity, owing to scarcity of seed. Nearly all the potatoes in this vicinity were frozen last winter. The crop of garden vegetables was very small here the past season. The little black bugs, and striped bugs, and grasshoppers, and plant-lice, made us almost think of Egypt, just before the children of Israel came out of it. I think I never saw them so numerous.

It has been a fine season for clearing new land. A large breadth has been cleared and sown to wheat, besides many acres of the old land. Since about the middle or last of September, the weather has been very variable. As a general thing, the streams have been very low ever since last May, till last week, so that it has been very difficult, much of the time, to get any grinding done at the mills. Last Tuesday and the night following, it rained to some purpose. The wind was in the East; but on Wednesday about noon, the wind shifted into the West and the weather became freezing cold, and continues so to the present time. Yours truly, D. M.

Fisheries in New-England.—The fishermen of Gloucester, Mass., are making money by engaging in the Halibut fishery. They cruise about the Isle of Sable, and George's Banks, but the business is deemed hazardous, and sometimes does not pay. The fishermen of Orleans, on Cape Cod, are earning, it is said, $300 a day by catching eels. Five tons were shipped to New-York recently, on one day. These "spears," with which this fish is caught, will not probably be turned into "pruning hooks" very soon, at this rate.

How to Get Rid of Emmets.—The *New-England Farmer* says: "Wet a large sponge in sugar water, and lay it on the shelf. When it it is filled with ants, drop it into cold water and drown them. If dropt into hot water, the ants will be killed in the sponge, and give trouble in removing them.

How to Get Rid of the Flies.—"It is a curious fact," says the *Courier de Lyon*, "that although the butcher shops at Geneva are all open, and immense numbers of flies may be seen on the outside walls, not one comes in. This is caused by the inner walls being rubbed over with laurel oil, which is an effectual preventive against the intrusion of these troublesome insects. The same

oil is also used with success in preventing the flies from spoiling the gilt frames of looking-glasses, pictures, etc." The *Courièr du Havre*, in alluding to this fact, states that no fly will enter a room in which a wreath of walnut leaves has been hung up.

ILLUMINATING GAS.—The credit of inventing gas lighting is given to Philip Le Bon, an engineer of roads and bridges in France, in 1785. He commenced by distilling wood, in order to obtain from it gas, oil, pitch, and pyroligneous acid, but his work indicated the possibility of obtaining gas by distillation from fatty or oily substances. He eventually died, ruined by his experiments. The English soon put in practice the crude idea of Le Bon. In 1804, Windsor patented and claimed the credit of inventing the process of lighting by gas; in 1805 several shops in Birmingham were illuminated by gas manufactured by the process of Windsor and Murdoch; among those who used this new light was Watt, the inventor of steam engines. In 1816, the first use of gas was made in London, and it was not until 1818 that this invention was applied in France.

FLUIDITY OF THE BLOOD.—The cause of the fluidity of the blood has been for a long time studied. Dr. W. B. Richardson, who has recently received the Astley Cooper prize for an essay on the subject, thinks he has proved that the fluidity of the blood is due to the presence of a minute quantity of ammonia, probably in the form of a neutral carbonate. When the blood is at rest and coagulates, it parts with ammonia; and in the disease known as purpura, or watery condition of the blood, subjecting the person to hemorrhage from all parts of the body, even the skin, an excess of ammonia is found in the breath. These facts confirm the theory of Dr. Richardson.

AMMONIUM.—Dr. Hoffman lately claimed before the British Royal Institution, that he had obtained the metal Ammonium. It was in the form of a bright glistening mass, somewhat resembling butter. If this is so, all the constituents of the atmosphere are metallic.

APPEARANCE OF JUPITER.—Astronomers have recently discovered that the lowest apparent belt of Jupiter "is a perfect assemblage of clouds, and below this is a very fine line of a yellow color, which appears like a microscopic thread stretched across the planet."

THE TELEGRAPH IN INDIA, now extending 4,000 miles, is to be increased to a length of 7,000 miles.

THE COPPER MINES OF TENNESSEE.—The Nashville *Union and American* says:—"The copper fields of Tennessee lie in the Eastern Division, and were but a few years ago entirely unknown, Their exploration and development are yet in their incipient state. Nevertheless, there have been shipped this year from all the mines, 14,291 tons. It is estimated by the able and experienced President of the Hiwassee Mining Company, Samuel F. Tracey, of New-York, that if they had had a branch railroad from the mines to the East Tennessee and Georgia Railroad, the different Companies could have shipped 29,000 tons. The Hiwassee Company alone, sold their ore and copper in New-York for $150-000, but the cost of transportation was $65,000. Much of this enormous sum was paid for wagoning, and freight on the Oconnee River, and boxing, which might have been saved by the proper railroad facilities."

The copper ores of Tennessee are exceedingly rich, averaging from eighteen

to forty per cent.—the general average being eighteen per cent. The English ores are said to yield an average of eight per cent.; Chili, twenty; the Cuban, about fifteen per cent. The world produces about 60,000,000 pounds of copper annually. Of this amount, in 1852, Great Britain and Ireland produced of ore and metal, 28,820,000 pounds; Chili exports 18,000,000 pounds, aud Cuba produces 8,000,000 pounds, which she sends to England for smelting, being destitute of fuel.

Profits of Sheep.—The *Ohio Farmer* estimates the profit on sheep in that State, the last year, at $6,000,000, and the whole capital invested, at $60,000,000. The number of sheep is estimated at five millions, and the wool clip last year reached 10,196,000 pounds—one-fifth of the entire wool clip of the Union.

Influence of Railroads.—During eight months ending with November, there were sent from the railroad station at St. Albans, Vt., to market, 1,888,903 pounds of butter, which at 20 cents, the average price paid, would make the sum of $377,758 60. The amount of cheese is 1,207,613 pounds, and the average price being about 8½ cents, would make the sum of $102,732 10. Butter used to be sold there for ten or twelve cents a pound.

Fees of Hairdressers.—A ladies' hairdresser in New-York, informs his patrons that, owing to his present style of dressing ladies' hair, the charge will be two dollars each time, during the season, after the first of January, 1857. Bridges, in the fashion of Louis XIV, XV, ect., as heretofore, five dollars.

Progress of Railroads.—The annual statement of railways in the Union has just been published by the United States Railroad and Mining Register. It estimates the total number of railways 24,192, showing an increase of 3484 over last year. Averaging the cost of building these miles of railroad at $30,000 as a low estimate per mile, the amount expended on our internal lines of communication the last year, is not less than $90,000,000.

Australian Cotton.—An arrival at San Francisco from Australia brings intelligence that the colonies were felicitating themselves on the prospect of successful cotton culture.

"This week," says the *Sydney Herald*, "has been productive of an event which (trifling as it was in its immediate momentary results) is one which must be regarded as most important, and one which may hereafter be chronicled with more than ordinary interest. We allude to the public sale, by Messrs. Mort & Co., of two bales of New-South Wales cotton wool, grown in the district of Moreton Bay. This product was declared by experienced persons to present a highly favorable sample, free from seed and of a fair staple. The prices obtained was two shillings per pound. We may remark that the latest quotations in England for the best Sea Island cotton of the United States was 2*s*. 3*d*. It is not intended at this early moment to institute any comparisons, because of the price realized for this the first sample of Australian cotton wool offered for public sale; it having been got up with extreme care, and the understood object of the purchaser being to transmit it to the Paris Exhibition of 1855. It may not be out of our place to remind the cotton growers of Moreton Bay that sixty-five years ago, the United States did not send one pound weight of cotton wool to England, whilst the gross exports of the States at the present date are about 1,000,000,000 pounds; of which the United Kingdom takes about 600,000,000 pounds.

PHOTOGRAPHY IN THE EYE.—Dr. Sanford who examined the eye of Beardsley, murdered at Auburn, to test the truth of the statement that the last scene viewed by a dying man remains fixed on the retina of the eye, publishes the following interesting statement:

"At first we suggested the saturation of the eye in a weak solution of atrophine, which evidently produced an enlarged state of the pupil. On observing this, we touched the end of the optic nerve with the extract, when the eye instantly became protuberant. We now applied a powerful lens, and discovered in the pupil, the rude, worn away figure of a man, with a light coat, beside whom was a round stone, standing or suspended in the air, with a small handle stuck as it were in the earth. The remainder was debris, evidently lost from the destruction of the optic, and its separation from the mother brain. Had we performed this operation when the eye was entire in the socket, with all its powerful connection with the brain, there is not the least doubt but that we should have have detected the last idea and impression made on the mind and eye of the unfortunate man. The thing would evidently be entire; and perhaps we should have had the contour, or better still, the exact figure of the murderer. The last impression before death is always more terrible on the brain from fear than any other cause; and figures impressed on the pupil more distinct, which we attribute to the largeness of the optic nerve and its free communication with the brain."

TRANSPORTATION OF FLOUR BY CANALS AND RAILROADS.—The Buffalo papers state that the railroads now carry from that city to New-York more than five times the flour which is transported upon the Erie Canal. During the past season there has arrived at Buffalo by the lake 1,078,206 barrels of flour, only 76,081 barrels of which were shipped by canal, the remainder, over a million barrels, all going forward by railroad.

This single fact shows more conclusively than a whole volume of theoretical argument, the ability of railroads to compete with water communication, and the success which will attend them in developing the resources of all those countries where the construction of canals is not feasible and there are no navigable rivers to bring the produce of the interior to markets on the sea-coast.

OIL FOR THE LIGHT HOUSES.—We mentioned yesterday that the contract for ninety-five thousand gallons of Sperm Oil for the supply of the light-house service for the coming year had been awarded to contractors in this city. From the Washington correspondence of the *New-York Times*, we learn that "among the bids received was one from the Breckinridge Coal Company of Kentucky, proposing to supply oil made from their coal. This was something quite unexpected; and as the bid for this novel article was a low one, the Board found themselves in something of a quandary. The Government, however, has laid before it such apparently indisputable evidences of the superior illuminating quality of this oil, of its inaptness to gum, and its power to resist a lower temperature than the Winter strained sperm oil, that it has ordered a scientific test to be made. If the result proves satisfactory, the Breckinridge Company will get the contract next year, at a price far below the lowest bid for the necessary quality of fish-oil."—*New-Bedford Mercury.*

RECIPE FOR PRESERVING CABBAGE.—If farmers would enjoy that almost inseparable appendage to a fine ham, a very little care and trouble will insure it. I have succeeded admirably by the following method: Let the cabbage remain in the hill as long as is prudent against frost or snow. When ready to be put away, prepare a long trench in a dry spot of earth, more or less deep and wide in proportion to the size of the heads. The cabbage should be placed in a trench, after being despoiled of all imperfect leaves, with the stock upward, and well covered with earth, raising a mound the whole length of the trenches, high enough to turn off water. This process will bleach them perfectly white, and make them crisp and tender. Large heads of greens will bleach, and sometimes

head very well, if placed in the trench alternately with a firm and solid head of cabbage. The heads should be packed close to each other in the trench.—*Louisville Journal.*

In as mild climates as that of St. Louis this might do well. In colder regions it would be better to earth them up, in a similar manner, in the cellar, where they would be accessible during the whole winter.

Improvement in Soap.—The wife of an American agriculturist has been experimenting in soaps, and finds that the addition of three quarters of a pound of borax to a pound of soap melted without boiling, makes a saving of one-half in the cost of soap, and three-fourths the labor of washing, improving the whiteness of the fabrics; besides the usual caustic effect is thus removed, and the hands are left with a peculiar soft and silky feeling, leaving nothing more to be desired by the most ambitious washerwoman.—*Farmer and Visitor.*

A Wrinkle in the Age of Horses.—A few days ago, a gentleman from Alabama gave us a piece of information in regard to ascertaining the age of a horse, after he or she has passed the ninth year, which was new to us, and will be, we are sure, to most of our readers. It is this:

"After the horse is nine years old, a wrinkle comes on the eyelid, at the upper corner of the lower lid, and every year thereafter, he has one well defined wrinkle for each year over nine. If, for instance, a horse has three wrinkles, he is twelve; if four, he is thirteen. Add the number of wrinkles to nine, and you will always get it." So says the gentleman; he is confident it will never fail. As a good many people have horses over nine, it is very easily tried. If it is true, then the horse dentist must give up his trade.—*Southern Planter.*

Mulching Potatoes with Straw.—*Editors Genessee Farmer:*—Having seen the advantages of covering potatoes with straw this season, I deem it of sufficient importance to jot a few lines to your (or rather our) paper on the subject. The ground selected for the purpose, was a side-hill facing south, and had been in corn the two previous years, without manure. The ground was ploughed on the last day of March, as deep as two horses could well do it, and harrowed twice crosswise. The potatoes were planted in drills on the fifth of April, and covered by hand. We then left them until a few tops were visible, when we covered them with straw, to the depth of four or five inches. This was on the 24th of April. We left them to their fate, not stirring the soil in any manner until digging time, when on taking off the straw, some of the finest potatoes that ever greeted mortal eyes, lay at our feet, on the surface, requiring very little digging.

The same piece of land is now wheat, and although it was sowed exactly one week later than the other portions of the same field, it has outstripped it in height, and is much more thrifty every way. Any one can see, almost to an inch, where the straw has lain. R.—*Cheviot, O., Nov.* 12, 1856.

Why did not R. tell us how much straw it took to cover an acre? and at what rate the potatoes yielded? Four inches of tolerably compact soil, weighs about 666 tons to the acre. Straw, to be sure, is lighter, but it would take an enormous quantity to cover a considerable field, four inches thick. There is no doubt that such a dressing would produce a great crop of potatoes, and that the land would be found in very high order for a next crop; but can straw be afforded for such a purpose? We think not. If the mulching process is to be adopted, it must be done with leaves from the woods, with a sprinkling of straw to keep them from blowing. That great crops of potatoes can be grown in this way, we know by our experience; but whether they can be thus grown economically, we doubt. N.

To Preserve Herbs.—All kinds of herbs should be gathered on a dry day, just before or while in blossom. Tie them in bundles, and suspend them in a dry airy place, with the blossoms downwards. When perfectly dry, wrap the medicinal ones in paper, and keep them from the air. Pick off the leaves of those which are to be used in cooking, pound and sift them fine, and keep the powder in bottles, corked up tight.—*Can. Ag.*

Trees Gnawed by Mice.—In your paper, I see several articles about protecting apple trees from mice, etc. The best remedy I know is to paint them with coal tar. J. W. [We have published several different preventives lately, for this purpose, all of which have their advantages in different circumstances—but we have never found any thing yet, that is cheaper and more effectual than the long-tested mode of banking up the stems with earth, about a foot high. One man will do hundreds in a day, and if grass or weeds are not thrown up with the earth, the mice will never approach the trees.]—*Country Gentleman.*

Chinese Sugar Cane.—All reports from those who have grown this plant, so far as we have seen, have been highly favorable—so much so, that all the seed which can be procured, will be planted the coming season, when its value as a syrup plant will be thoroughly tested. So strong is the confidence in it, that several gentlemen in the Southern States, intend to plant from ten to fifty acres, and we hear of one who proposes to plant one hundred acres, from a belief that very excellent syrup may be made from it at a great profit, even should he fail to make it into sugar.

We are indebted to a correspondent at Baltimore, for some notes in relation to it, from which we learn that Mr. Asa Whitney, near Washington City, raised last summer, one hundred bushels of the seed, which have been purchased by the Patent Office at $5 per bushel, for gratuitous distribution. One bushel of it is to be sent to each of the Secretaries of the several State Agricultural Societies for distribution.—*Sat. Eve. Post.*

Large and Small Potatoes.—Mr. J. H. Hamilton gives a sketch of his experience in planting large and small potatoes. The produce of the large potatoes was one-third greater than that of the small seed. He is "inclined to the opinion that large potatoes are preferable for seed." No doubt he is right in his opinion. It is a general law of nature that "like begets like," though it is well known there are exceptions to all general rules.

In the *Irish Farmer's Gazette*, 8th November, a Mr. Dixon gives the result of his experiments in planting large and small seed potatoes the past season. The large potatoes selected weighed about half a pound each—planted exactly a yard apart, each way; product, a few pounds short of eight tons per acre. The small seed, either whole or cut in the usual way, yielded seven tons per acre. The samples from the large seed were *decidedly* the best.

Yes, large seed potatoes are preferable to small, beyond a doubt; but those of medium size, *uncut*, are better than either; and although small ones will give nearly as large a crop, especially if the season is wet, yet they never should be planted, except when others cannot well be obtained, and then the produce should not be used for seed the next year.

To double crops, on most farms, about all that is necessary is, for our farmers to sell of one-half their land, and with the proceeds buy manure for the other. The larger the farm, the less a man gets to the acre.—*Farmer & Visitor.*

Why not double the labor and the manure, and make the increase of crops pay for both, and leave a profit? *It can be done.* We want a farmer to have land enough to call out his faculties and make a man of him. He can't be much of a man on a mere patch.

VERMONT VERD ANTIQUE.

Our readers may recollect that we made statements in relation to this rock in one or two numbers of the last volume. The facts there stated, have been made the subject of careful investigation by some of our learned chemists, and among others, by Dr. Chas. T. Jackson and Dr. Hayes, of Boston. A paper on the subject was read before the Boston Society of Natural History in February last, and is published in the January number of the *American Journal of Arts and Sciences.* From this we learn more of the details of the various experiments than we have seen elsewhere. It appears that the white veins are composed of carbonate of lime, chiefly, (as we asserted) with a small portion of carbonate of magnesia and carbonate of iron. It differs very little from the verd antique of Europe. The proportion of silex in the serpentine part is about 42 per cent., and of magnesia, from 30 to 35 per cent. A specimen of verd antique from Lynnfield, Mass., contained only 37·5 of silica and 41 of magnesia. These analyses prove the identity of composition of the verd antique of Europe and this country. Dr. Jackson also reäffirms what we have before stated, that the Vermont rock is uncommonly durable, and is remarkable for its power of resisting atmospheric agencies, acids, and fire.

Our original statement is fully confirmed by Dr. Jackson, that this valuable material for ornamental architecture is a "serpentine mixed with and containing numerous veins of magnesian carbonate of lime." We only add that it is exceedingly beautiful, beyond any other ornamental "marble" we have ever seen, and is more durable than almost any of the pure marbles. P.

Artificial Milk.—The savans of Europe have discovered a mode of preparing "artificial milk," which though more expensive than that adopted by our milkmen, may be more worthy of imitation. But even this, they say *is* not milk, though it resembles milk in color, consistence, odor, and even taste. It is prepared as follows: In a Papin's digester, put one kilogram of meat, with five times as much water. Seal the top hermetically. A current of steam between its double sides raises the temperature to 140° F. In forty minutes, open a small stop cock, and a vapor issues having the odor of broth; but after a few seconds there issues a white liquid, which is the artificial milk. The residuum is only bones, meat, and soup of inferior quality. This milk is, obviously, an emulsion produced by the fat and water, with gelatine. It is quite nutritious. Its utility, etc., are under trial in some of the hospitals in Paris. P.

Laughter.—We have long regarded free, unrestrained laughter as conducive to health; but if the Messrs. Fowler, of the *Water-Cure* and *Phrenological Journals*, are right, it is a more potent remedial agent than even we had suspected. Hear what they say:

As a remedial agent nothing equals it. One hearty laugh every day will cure each and all who are sick or any way ailing of whatever complaints, and keep those in health always well. The laugh-cure will even beat the water-cure, potent as it is. And the two combined, if universally applied, would soon close up every apothecary shop, lay every physician, water-cure included, and banish every disease from among men

All its giggles effectually stir up every visceral organ, churn the stomach and bowels more effectually than any thing else can possibly do—hence the easy laughers are always fat—hurrying the blood throughout the system with a real rush, burst open closed pores, and cast out morbid matter most rapidly—for how soon does hearty laughter induce free perspiration—set the brain in motion to manufacture emotions, thoughts, and mentality, as nothing can excite it! and universally practiced, would be worth more to the race than if California gold deposits covered the whole earth! Laughter is life; while sadness and long-faced sedateness is death.

A cotemporary relates the following story of a medical gentleman of the benefits of a good hearty laugh:

While on a pic-nic excursion with a party of young people, discerning a crow's nest on a rocky precipice, they started on in great glee to see who could reach it first. Their haste being greater than prudence, some lost their holds, and were soon rolling and tumbling down the hill-side, bonnets smashed, clothes torn, postures ridiculous, but not one hurt. Then commenced a scene of most violent and long-continued laughter, and in which, being all young people, well acquainted with each other, and in the woods, they indulged to a perfect surfeit. They roared out with merry peal on peal of spontaneous laughter; they expressed it by hooting and hollowing when ordinary laughter became insufficient to express the merriment they felt at their own ridiculous situation, and those of their mates; and ever afterward the bare mention of the crow's-nest scene occasioned renewed and irrepressible laughter.

Years after, one of their number fell sick, became so low that she could not speak, and was about breathing her last.

Our informant called to see her, gave his name, and tried to make himself recognized, but failed, till he mentioned the crow's nest, at which she recognized him, and began to laugh, and continued every little while renewing it; from that time she began to mend, recovered, and still lives a memento of the laugh-cure.

Here is something for those who wish to be Beautiful.—A truth, which we have often appreciated, is beautifully expressed in the following:

"As we were about to start, I saw the captain move to an elevated position above the wheel; and it was interesting to see how quickly and completely the inward thought or purpose alters the outward man. He gave a quick glance to every part of the ship. He cast his eye over the multitude coming on board the ship, among whom was the American ambassador to England, who, if the captain may be said to embody the ship, may be said with equal truth to embody in his official person a nation's right and honor. He saw the husbands and wives, the mothers and children, intrusted to his care; and his slender form, as he gave the orders for our departure, seemed at once to grow more erect and firm; the muscles of his face swelled; his dark eye glowed with a new fire; and his whole person expanded and beautified itself by the power of inward emotion. I have often noticed this interesting phenomenon; and have come to the conclusion, if man, or woman either, wishes to realize the full power of personal beauty, it must be by cherishing noble hopes and purposes—by having something to do, and something to live for, which is worthy of humanity, and which, by expanding the capacities of the soul, gives expansion and symmetry to the body which contains it."—*Prof. Upham.*

Association of the Sexes.—The author of a work on amusements well observes: "The natural and only safe mode of enjoying amusements, is in common. Where one sex, or any one particular class, enjoy their amusements alone, they are sure to run into excess. The division of the human family into man, woman and child, father, mother, brother and sister, is the only conservative principle of society; they act and reäct upon each other like the different seasons of the earth. Each age and each sex has its peculiar characteristics, that serve to modify and check certain mischievous tendencies in the other sex, and in others of different ages.

"For one sex to attempt to amuse themselves agreeably and innocently alone, is like trying to make music on a one-stringed instrument; it has about it a sameness that is tedious and annoying. The union of the aged with the young, the fair with the manly, in our diversions, brings every source of social improvement and enjoyment together—age with its gravity and experience, mid-life with its energy and its cares, and youth with its vivacity and its hopes. Is it right for the aged to censure and discourage the innocent amusements of the young, merely because they fear that they may be carried to excess, when, by presiding at those diversions, they can effectually prevent it?"

THE FOLLOWING IS HANDED TO US AS A PRETTY RESPECTABLE PIECE OF NONSENSE ABOUT GUANO.—Although some people may be inclined to doubt the truth of the following yarn, we can bring forward any quantity of vouchers. An old salt of our acquaintance, says that when he was in the guano trade he sailed as mate of an old brig which might have been a tender to Noah's ark. On a return trip with a load of guano, the hatches were left open one night, and a tremendous shower wet the guano in the hold, and produced the most surprising effect. The timbers of the vessel sprouted and grew in all directions. Between decks was a complete bowery. The forecastle became an almost impenetrable thicket, and the cabin a beautiful arbor. The rudder-post being made of white oak, grew up into a "live oak" tree, which afforded a grateful shade to the man at the helm, though he was sometimes annoyed by the acorns rattling upon his tarpaulin hat. The masts became very imposing with their evergreen foliage, and, strange to relate, the foretopmast, which had been carried away in a gale, grew out again, and the altitude of all the masts was so much increased as to render the brig exceedingly crank. The vessel had boughs on her stern, and the figure head (speaking figuratively) was as full of boughs as a dancing master. They were obliged to prune the bowsprit and some of the spars twice a week. The quarter-deck was covered with shrubbery, and the cook's caboose resembled a rustic summer-house. Crab apples grew on the pump handle, and a cherry table in the cabin bore fruit. Perhaps the most remarkable circumstance occasioned by the stimulating and fertilizing influence of the guano, was that the cockroaches on board became so large that they could get up the anchors and make sail on the brig. One of the owners of the craft facetiously remarked that she went out a full rigged brig and came home half *bark*. There is nothing like guano to make things grow, and for strict truth and veracity give us an old sailor when he lays himself out on a big yarn.—*Boston Herald.*

FLAX.—The best ground for this plant is an open, somewhat friable clay, mingled with sand and mould—the seeds ought to be sown thick, whereby the stalks are forced to grow more slender, and thus the fibres of the bast or hair are not only smoother and finer, but more uniform in length—should be sown in rows in this country for irrigation; if the raising of the seed be the principal object, the seed should be more thinly sown.

When the flax is ripe, which is shown by the bottom of the stalk becoming yellow, and the leaves beginning to drop off, it must be immediately pulled up by the roots. The seeds in this state, are still immature, fit merely for the oil-press and not for sowing. When the seed crop is the object, the plant must be suffered to acquire its full maturity, in which case the fibres are less fine and soft.

CONGRESS has passed a bill in reference to unoccupied Guano Islands, which is regarded by the agricultural interests of the country with deep solicitude. The bill provides that when any American, in a vessel of the same nationality, shall discover an island, vacant and unappropriated, containing deposits of guano, he may take possession of it for his own advantage, the eminent domain being reserved to the United States, and provided that the price of guano, when imported into the United States, shall be limited by a certain standard name in the bill. The Navy Department has taken lively interest in this matter, and has given all the assistance within its power to the attempts from time to time made for securing to the United States some of the numerous unclaimed islands in the Pacific, covered with guano. Commodore Mervine, in the sailing frigate Independence, set out from San Francisco in December, 1855. Commodore Mervine's instructions were to search for these islands alleged to have been discovered by Caleb Baker of New-Bedford, and if they were found, to take possession of them for the United States. There are six other ships of war in the Pacific, whose commanders have instructions to search for guano islands. Commodore Mervine has returned, but his report is not at all satisfactory to the parties interested.—*American Farmer.*

ORIGIN OF THE WORD TARIFF.—At the southern point of Spain, and running out into the Straits of Gibraltar, is a promontory, which, from its position, is admirably adapted for commanding the entrance to the Mediterranean, watching the sight of all ships. A fortress stands upon this promontory, called now, as it was in the times of Moorish domination, *Tarifa*. It was the custom of the Moors, to watch all merchant ships going into or coming out of the midland sea, and issuing from the stronghold, to levy duties according to a fixed scale on all merchandise passing in and out.

And this was called from the place where it was levied, *tarifa*, and from this comes our word tariff.

A MANUFACTURER MADE A PEER.—England is fast progressing in Democracy and sound policy. The Manchester *Guardian* states that Mr Strutt, a manufacturer, has been created a peer, under the title of Baron Kepler. This is the first mill-owner who has been created a Peer, and is a new sign of times in England, as it marks the surrender of feudalism to industry. It is something for those who claim to be the descendants of the mailed barons to receive into their number and order a man who has made a fortune with spindles and looms, and who still pursues the same calling.

The House of Peers is more democratic than many may suppose. Lord Lyndhurst is the son of a portrait painter, and Lord Campbell, Chief Justice of England, was once a poor man, and the reporter of a newspaper.

MERIT REWARDED.—Thomas Clark, Esq., favorably known to the city press as the gentlemanly manager and superintendent of the Newspaper Department in the City Post-Office, received on New-Year's Day a substantial token of the appreciation in which he is regarded by his fellow employees in that establishment. The present consisted of a solid silver tea service properly inscribed and elaborately ornamented. This token is particularly gratifying to Mr. Clark, as it was, we are informed, entirely unexpected on his part. We may add that the compliment was bestowed upon a most worthy gentleman.—*Scientific American.*

We cheerfully add our testimony to the uniform courtesy and gentlemanly bearing of Mr. Clark in all our intercourse with him. We are happy to note such incidents as that above mentioned.—EDS. P., L., & A.

JOSEPH HARRIS, Esq., editor of the *Genessee Farmer*, an excellent monthly, published at Rochester, N. Y., at the very low price of 50 cents a year, fully endorses our opinion that "a farmer should have at least two agricultural papers, one in his own region, and one more distant and general"; and that "a farmer who is feeble in body, and cannot do hard work, will get on better, if read up in his business, than one as strong as Samson without that advantage." He says, and we think justly, "It is the duty of every farmer to help sustain the agricultural paper published in his own nighborhood, and if it is not good, to try to make it better by communicating his experience; but he should also take a paper that elucidates principles which can be applied in all countries and climates."

Book Notices, Etc.

NEIGHBOR JACKWOOD. By PAUL CREYTON, author of Father Bright Hopes, Martin Merrivale, etc. "A certain woman went down from Jerusalem to Jericho and fell among thieves." Boston: Phillips, Sampson & Co. 1857. 414 pages, 12mo.

If our readers remember our notice of Martin Merrivale, some year or two ago, they are prepared to see a very strong commendation of this author as one of the ablest writers of fiction now living. Who he is, we know not. But he has a talent for writing rare in any country and in any age; and though he weaves into this story a sprinkling of one of the *popular* topics of the day, his Martin Merrivale proves him to be quite competent to write a powerful book, without any adventitious aid of this sort.

THE PRINCIPLES AND PRACTICES OF BAPTIST CHURCHES. BY FRANCIS WAYLAND. New-York: Sheldon, Blakeman & Co. 1857. 336 pages, 12mo.

Dr. Wayland is too distinguished as a scholar and author to be unknown to our readers. Hence we only need to say that this reprint of what has before appeared in

periodicals, is very handsomely printed, and in a condensed form, gives, in Dr. Wayland's pure Saxon style, the principles and practices of one of the great sects of this country. He tells us very many very important truths that would be useful to all denominations.

"THE MODERN WHITFIELD." Sermons of the Rev. C. H. Spurgeon, of London, with an introduction and sketch of his life. By E. L. MAGOON. New-York: Sheldon, Blakeman & Co. 1857. 320 pages, 12mo.

The "introduction" contains a very brief sketch Mr. Spurgeon, and is made an occasion for saying many good things about education, and not a few very foolish and harmful things. We do not like its spirit, and yet it presents some very fine hits. Thus a father who spends much money in the education of a son, without making a man of him is made to say with Aaron of old, "I cast gold into the fire and there came out this calf." It was not necessary to decry the value of education, even to one of small capacities, while he was poring incense before Mr. Spurgeon. Mr. Spurgeon's Sermons exhibit much valuable truth, in a very taking way, but more familiarly with books if of the right kind, would have led him to avoid such a phrase as "if I were to preach nothing but what would please *the whole lot of you*, what *on earth* should I do;" nor *before the dawn of creation*, would God have made "the placid clouds his canopy;" nor would he have described saints as those who "tread the golden streets borne aloft on the wings of the spirit;" the wings and being borne aloft might make his *tread* at least uncertain. He says "The will is somewhat worse than the heart to rend, but there is one thing that excels the will in its naughtiness, and that is the imagination." Perhaps he is correct in this. But the sermons are rich in thought, and abound in illustrations of very original character, and sometimes very beautiful, though marred occasionally with such imperfectations as we have just mentioned. The book will be read with great profit and pleasure.

ELECTRIC MAGAZINE OF FOREIGN LITERATURE. New-York: 5 Beekman street. W. R. BIDWELL, Editor and Publisher.

This well known journal still maintains its high rank in the literary publications of the country, without abatement. Its monthly issues contain 144 pages of choice foreign literature, handsomly printed and covered, at $5 a year. It occasionally contains elegant engravings of distinguished men.

List of Patents

ISSUED FROM THE U. S. PATENT OFFICE FROM NOV. 26 (THE TERMINATION OF THE PREVIOUS LIST) TO DECEMBER 24.

Frederic Allen, Worcester, improvement in mop-handles.

Moses S. Beach, Brooklyn, improvement in feeding paper for printing presses.

Edwin Bennett, Baltimore, improvement in earthen vessels for hermetrically sealing purposes.

John B. Derby, Boston, wristband fastener.

William Filmer and Edward Bookhout, New-York, mode of packing electrotype plates.

Robert Griffiths, Philadelphia, improvement in nut machines.

John P. Hayes, Philadelphia, improvement in ovens.

Jonathan P. Grosvenor, Lowell, Mass., improved method of champing cutters in cutter heads for planing machines.

Stephen R. Hunter, Courtlandt, N. Y., improved raking apparatus for harvesters.

Martin Gore and John P. Gore, St. Louis, improved rock drilling machine.

James H. Morley, St. Louis, improvement in railroad chains.

Henry Newmenger, Nacaugie, Pa., improvement in pentagraphs.

Horace W. Peaslee, Malden Bridge, N. Y., improvement in drying cylinders for fibrous manufacture.

E. Y. Robbins, Cincinnati, improvement in the baby waker and jumper.

Harley Stone, Uxbridge, Mass., and Mason D. Cole, Blackstone, Mass., improvement in expanding tap.

Stephen Scotton, Richmond, Ind., ice-saw.

Wm. H. Saunders, Hastings, N. Y., improved axle box.

Henry M. Walker, Watertown, Ct., improvement in the Siphon a' Clapit.

Albin Warth, New-York, improvement in converting rotary into reciprocating motion.

Jesse Whitehead, Manchester, Va., improvement in self-acting rakes for harvesting machines.

Job White, Belfast, Me., improved method of applying steam to and of cutting scarfs from wood.

Orin O. Witherell, New-York, improvement in wrenches.

Theodore T. Woodruff, Alton, Ill., improvement in railroad car seats and couches.

Thomas Floyd, Chambersburg, Pa., assignor to Thomas Floyd and Geo. H. Meraling, of same place, improvement in vault covers.

Vespasian O. Falcolm, Bedford, Mass., and Charles H. Hill, Bellerica, Mass., improvement in engines for grinding paper stock.

Edwin Jones, Greenfield, Mass., improvement in the Bramah planing wheel.

Andrew L. Fuller, Clinton, Mass., improvement in covering thread with wool.

David W. Smith, Boston, improvement in steering apparatus for ships.

Jas. Smith, Jr., Norton, Mass., improvement in casting metalic tubes.

Nathan Ames, Saugus, Mass., assignor to the Boston Hand Stamp Co., Boston, Mass., hand stamp.

DESIGN—George Bruce, New-York, design for printing types.

David Baldwin, Godwinville, N. J., machine for feeding paper to printing presses.

Henry M. Bonney, New-Bedford, Mass., improvement in sail hanks.

Timothy Brown, Georgetown, N. Y., alloy composition.

Alfred S. Beebe, Fall River, improvement in valve gear for steam engines.

Robert J. Brown, Perry, Pa., improved yielding joint for portable fences.

Wm. S. Blake, Boston, improvement in floats for steam boilers.

Martin Buck, Jas. H. Buck, and F. A. Cushman, Lebanon, N. H., improved machine for pressing hollow bricks or building blocks.

James W. Campbell, Brooklyn, improvement in elliptographs.

Job Cornell, Brooklyn, and Barnett McDougall, New-York, gas burner.

Wm. B. Coats, Philadelphia, improvement in machines for cutting the stalks of standing corn.

Erastus W. Ellsworth, East Windsor Hill, Ct., improved arrangement of valves, etc., in siphon rams.

Elie Joseph Hainant, of the Kingdom of Belgium, process of mashing grain.

Horace L. Hervey, Quincy, Ill., improvement in pocket lamps.

Thos. Hoge, Waynesburg, Pa., portable prairie fence for stock pen.

F. A. Hoyt, Boston, improvement in water gauges for steam boilers.

M. G. Hubbard, Penn Yan, improvement in teeth for reaping machines.

Wm. Mussehl, New-York, improvement in potato diggers.

Hudson Osgood, Waterville, Me., improved planing machine.

Silas S. Putnam, Boston, improvement in machines for forging iron.

Wm. G. Phillips, Newport, Del., improved approach-opening gate.

Charles Ratcliff, Cincinnati, improvement in nut machines.

Obediah Rich, Cambridge, process of preparing tannate of lime. Patented in England Dec. 18, 1854.

Isaac S. Roland, West Earl, Pa., improvement in washing machines.

Hamilton E. Smith, Philadelphia, improvement in corn shellers.

Lemuel Smith, Plymouth, Ct., improvement in lathes for irregular forms.

Chas. A. Shaw, Biddeford, Me., improvement in churns.

Wm. Tinker, Kelloggsville, Ohio, improvement in harvesters.

Anson Thompson, Glenn's Falls, improvement in implements for rolling seeds in the earth

Wm. H. Walton, New-York, improvement in cleaning the top flats of carding engines.

John J. Westerfield, New-Brunswick, N. J., improved method of cutting curved moldings.

Henry Wyant, Knox county, Ind., improvement in seed planters.

Chas. Atwood, deceased, late of New-York, per his administrators, improvement in machine for sticking pins.

Wm. P. Surgery, Hackney, Great Britain, assignor to Chas. A. Stanley, New-York, improvement in cigars. Patented in England, Sept. 25, 1854.

John Taggart and Leonard A. Grover, Roxbury, Mass., assignors to themselves and E. W. Banker, Boston, Mass., improvement in machines for husking corn.

John Underwood, Lowell, improvement in the cylinder and piston of hydraulic and steam engines.

Wm. A. Vertrees, Winchester, Mo., improvement in churns.

Robert Bryson, Schenectady, improvement in machines for husking corn.

Frederick Berry, Harrisburg, improved machine for stamping leather, combined with a rolling machine.

Erastus W. Ellsworth, East Windsor Hill, Ct., improvement in feed water pumps for steam boilers.

R. L. Haws, Worcester, machine for paging books, etc.

James M. Kern, Morgantown, Va., improvement in seeding machines.

Goodrich Lightfoot, Elgin, Ill., improvement in churns.

C. A. McPhetridge, St. Louis, candle-dipping machines.

Edwin Moore, Avon, improvement in seed planters.

Joseph Nason, New-York, improvement in connecting tubes,

John Neville, New-York, assignor through himself and Lemuel Curtis, of New-York, to the Damascus Steel Manufacturing Company, Croton, New-York, improvement in making cast steel.

Willis H. Johnson, Springfield, Ill., mode of incorporating bituminous liquids with wet earths for cement.

James Reynolds, New-York, mode of making gutta percha cord.

Marshal Turley, Galesburg, Ill., improvement in prairie mows.

Levi Van Hessen, Westville, Ct., trap for catching fish.

George Watt, Richmond, Va., improvement in ploughs.

Moses D. Wells, Morganstown, Va., improvement in seeding machines.

Samuel Carson, New-York, assignor to the American Railway Manufacturing Company, New-York, aforesaid, method of charging the receiver of a locomotive with compressed air from fixed stations.

Charles G. Sargent, Lowell, and Abram Keach, Boston, assignors to Abram Keach and Caleb M. Marvel, Lowell, aforesaid, improvement in printing presses.

Mark Allceett, Hancock, N. H., improvement in adjustable cant hook for moving logs, etc.

Emanuel Andrews, Elmira, improved machine for grinding saws.

Solomon Andrews, Perth Amboy, improved case for padlock.

Clark H. Brown, Forest Port, N. Y., improved method of planing and tapering wooden hoops.

William Beach, Philadelphia, improvement in rake pans.

John Butler, Dunmore, Pa., improvement in valve motions for steam engines.

Wm. E. Copeland, Fall River, improved spring bolt.

Jabez Coney, Boston, improvement in pumps.

Chas. Flanders, Charlestown, Mass., improvement in railroad car coupling.

John Edwin Forbes, Hoboken, N. J., improvement in skate runners.

George H. Fox, Boston, and Henry J. Siller, East Cambridge, Mass., improved filtering faucet.

Harvey Gray, Bristol, Ct., improvement in lifting jack.

James E. A. Gibbs, Mill Point, Va., improvement in sewing machines.

John Heller, East Lampeter, Pa., improved portable water-mill.

James G. Hunt, Reading, O., improved portable field fence.

Lewis Jennings, New-York, improvement in sewing machines.

Peter H. Jackson, New-York, improvement in ship's windlass.

Joseph Kingland, Jr., Franklin, N. J., improvement in machine for grinding paper pulp.

Horatio Keyes, Leominster, Mass., improvement in machines for paring apples.

Samuel Klahr, Reamstown, Pa., improved boring machine.

Wm. Lewis, and Wm. H. Lewis, New-York, improvement in photographic baths.

Joseph Thomas McIntyre, Middletown, Del., improvement in railroad gate for cattle-guard.

Robert J. Morrison, Richmond, Va., improvement in harvesting machines.

William Moultrie, New-York, for press for printing hat linings.

Patrick Mihan, Boston, improved chimney cowls.

Jeremiah W. Mulley, Amsterdam, N. Y., improved mowing and reaping machine.

Thomas Nelson, Troy, N. Y., improvement in machinery for weaving shade cord.

Thomas B. Stout, Keyport, improvement in grinding-mill.

John S. Sanson and Wm. P. Farrand, Philadelphia, improved machine for making metalic slats for blinds.

Daniel C. Smith, Tecumseh, improvement in reaping and mowing machines.

Thaddeus F. St. John, Le Roy, N. Y., improved machine for wiring blind rods.

William H. Seymour, Brockport, N. Y., improved finger bar for harvesting machines.

Wendell Wright, New-York, mode of securing springs in upholstery.

Richard Shroder, Darlington, Pa., assignor to John S Russell, of Pittsburgh, Pa., and Richard Shroder and Alexander Anderson, of Beaver county, Pa., improvement in apparatus for coal oil.

Chas Moore, Hartford, Ct., assignor to William G. Sheldon, of New-York, and Lorenzo B. Chandler, and Charles Moore, aforesaid, machine for cutting and folding paper.

Solomon W. Ruggles, Fitchburgh, Mass., assignor to Silias Ruggles, of same place, improvement in wind-mills.

Thomas D Burrall, Geneva, New-York, improvement in reaping and mowing machines.

John C. Pedrick, Washington, D. C., improved apparatus for drying grain in the mass.

Jonathan Adams, Eastonton, Ga., improvement in ploughs.

Harry Abbott, Huron, N. Y., improvement in cider mill.

John Armstrong, New-Orleans, La., improvement in steam boilers.

G. H. Babcock, Westerly, R. I., improvement in printing presses.

Wm. W. Bryan, Schaghticoke, N., Y., improved mode of securing brass in the snath of a grain cradle.

Wm. B. Burnett, Lyons, N. Y., improved portable field fence.

Chauncy O. Crosby, New-Haven, Ct., improvement in machinery for folding paper.

Ralph Collier, Baltimore, Md., assignor to Alfred H. Reip and Ralp Collier, same place, improvement in rotary egg beaters.

Theodore Cook, Springfield, Mass., improvement in stoves and furnaces.

Henry Davenport, New-York, N. Y., improvement in machines for cutting India-rubber thread.

Platt Evans, Jr., Cincinnati, Ohio, hand printing press.

Andrew L. Fuller, Clinton, Mass., improvement in looms.

John T. Garlick, New-York, N. Y., improved spring hinge.

C. B. Galentine, Samuel Galentine, and Andrew J. Russell, Nunda, N. Y., improved hoof expander.

Andrew M. Hall, West Falmouth, Me., improvement in mowing machines.

Edward B. Howe, Lowell, Mass., improvement in trimming card clothing.

Sandy Harris, Philadelphia, Pa., improvement in bedstead fastenings.

Jacob Heckeedorn, Elkton, Md., improvement in ploughs.

Joseph Kingsland, Jr., Franklin, N. J., improvement in paper-pulp engines.

Edward W. Lacy, Oak Park, Va., improvement in hemp brakes.

Jesse Ladd, Holderness, N. H., improved machine for pointing shoe-pegs.

Wm. R. Landfear, Manchester, Ct., improvement in sewing machines.

James Letort, Wytheville, Va., improved door fastener.

Wm. Mather, Slack, Ky., improvement in blacksmiths' crane.

Samuel Gissinger and John W. Kellberg, Allegbany City, Pa., assignors to D. A. Morris, Pittsburgh, Pa., improvement in converting reciprocating into rotary motion.

Wm. Mason, Warren, Mass., improved device for operating fluid meters by hand.

Wm. H. McNary, Brooklyn, N. Y., improvement in the manufacture of hoisery.

Lea Pusey, Downington, Penn., arrangement of railroad platform scales.

John H. H. Perkins, Utica, N. Y., improvement in hot-air furnaces.

Hermann Schroeder, Lewis Sulewski, and Wm. Schmidt, Bloomington, Ill., improvement in breech-loading fire-arms.

Seligman Strouse and Joseph Strouse, New-York, N. Y., improvement in shirts.

Levi Skeels, Ostrander, Ohio, improvement in tinners' shears.

Edgar M. Stevens, Boston, Mass., improvement in corn shellers.

Sylvester J. Sherman, New-York, N. Y., improvement in truss pads.

Werner Staufen, Prussia, improvement in preparing vegetable fibres for stuffing mattresses and cushions. Patented in England Nov. 2, 1855.

Alfred E. Smith, Bronxville, N. Y., improved mode of connecting shafts with the axletrees.

John Stowell, Charlestown, Mass., improved method of hanging reciprocating gig saws.

Gideon O. Spence, Elmira, N. Y., improvement in melodeons.

Clark Tompkins, Troy, N. Y., improvement in knitting machines.

Joseph Welsh, Philadelphia, Pa., improvement in lubricating spindle steps.

A. F. Warren, Brooklyn, N. Y., fountain pen.

Allen B. Wilson, Waterbury, Ct., improvement in portable head rests.

Wm. Hannah, Middlefield, N. Y., assignor to L. H. Bowen and Wm. Hannah, aforesaid, improved machine for trimming bolts.

Elnathan Sampson, Vergennes, Vt., assignor to the "Vergennes Scale Manufacturing Company," of Vergennes aforesaid, improvement in weighing scales.

Andrew Grimes, Lancaster, N. Y., assignor to Chas. Day, of same place, improvement in burning charcoal.

Sylvester H. Gray, Bridgeport, Ct., assignor to himself and Francis Ives, same place, improvement in machinery for sizing hat bodies.

Benj. G. Dawley, North Providence, R. I., assignor to Z. Allen, same place, improvement in looms.

Elkan Alder, New-York, N. Y., improvement in spring-bed bottoms.

Moses S. Beach, Brooklyn, N. Y., machine for feeding paper to printing presses.

James Bolton, Richmond, Va., improvement in horse fastening.

Jos. Carpenter, Yorktown, N. Y., improvement in harvesting machines.

N. C. Sherman and S. Mason, Hazle Green, Wis., improvement in seed planters.

A. F. Johnson and F. A. Houghton, Boston, Mass., improvement in sewing machines.

Jos. Kingsland, Jr., Franklin, N. J., improvement in the process of grinding paper pulp.

John Case and Isaac Soules, Amsterdam, N. Y., improvement in smoke consuming furnaces.

John J. Squire, St. Louis, Mo., improvement in hay rakes.

John Worsley, Providence, R. I., improvement in manufacturing calendar rolls.

Charles Winship, New-Haven, Ct., improvement in refrigerators.

Jerome B. Woodruff, Washington, D. C., improvement in sewing machines.

E. K. Hayares, assignor to A. M. Mowe, Lebanon, N. H., and E. K. Hayares aforesaid, improvement in machines for sewing seed broadcast.

James A. Bazin, Canton, Miss., improvement in counting machines.

ADDITIONAL IMPROVEMENT.—Abner N. Newton, Richmond, Ind., improvement in breech-loading fire-arms. Patented June 27, 1854; additional improvement June 17, 1856.

RE-ISSUES.

Henry A. Chapin, Springfield, Mass, improved machine for reaming and tapping gas fittings; patented July 1, 1856.

Edward Lindner, New-York, N. Y., improved magazine, repeating and needle gun. Patented June 27, 1854.

Edward Lindner, New-York, N. Y., improved magazine, repeating and needle gun. Patented June 27, 1854. Re-issued on division.

John G. Machair, Norwich, Ct., improvement in manufacturing carpet. Patented August 7, 1855.

Thos. D. Worrall, Lowell, Mass., assignee (through Mifflin Paul) of Thos. Worrall, for multiform moulding plane. Patented August 29, 1854.

DESIGNS.

S. W. Gibbs, Albany, N. Y., assignor to G. W. Ball & Co., Cincinnati, Ohio, design for cooking stoves.

Garretson Smith and Henry Brown, Philadelphia, Pa., design for cooking stoves.

John T. Davy, Troy, N. Y., design for parlor grates.

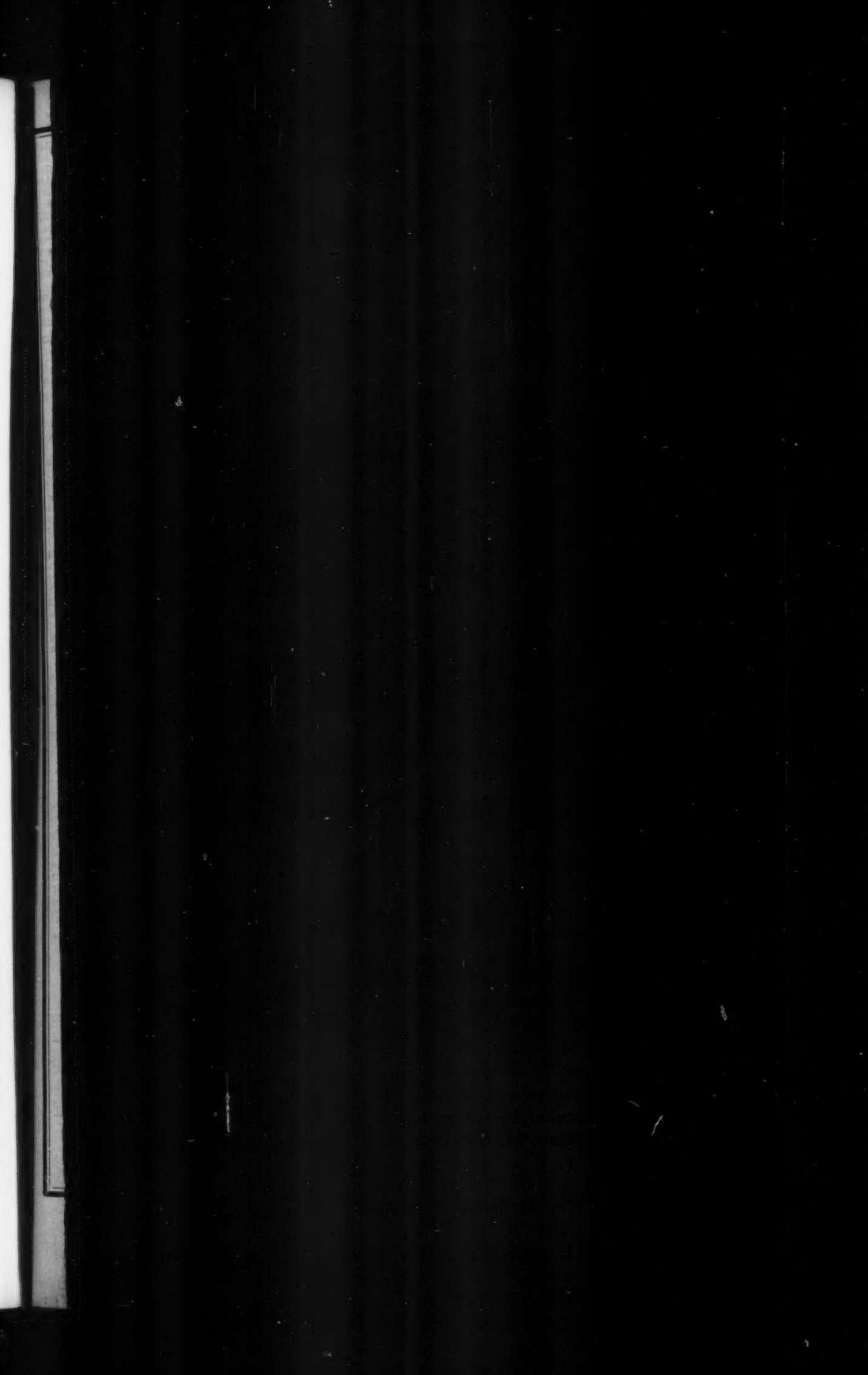
John T. Davy, Troy, N. Y, design for cooking stoves

John T. Davy, Troy, N. Y., design for parlor cooking stoves

John B Wickersham, New-York, N. Y., design for metallic bedsteads.

Antoine Glominski, Lansingburg, N. Y, assignor to Deborah, Albert E., and Nathaniel B. Powers, same place, design for floor-cloths.

AGENTS FOR THIS JOURNAL

Are as follows: and no other names are recognized, as such, at this office.

S. D. Allen, Paul A. Davis, in the Northern and Middle States; James Deering and Henry M. Lewis, in the Southern States. Require a certificate of agency from all others who present bills, the date of which is as recent as July, 1856.